

Karnataka Health Systems Development



Project Proposal

Department of health and family welfare
Government of Karnataka

Bangalore, January 1996

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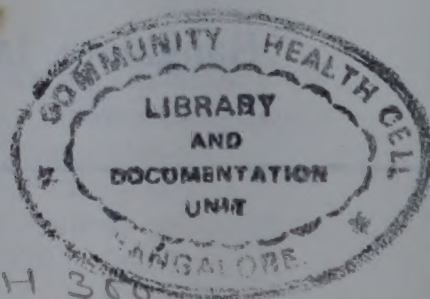
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Foreword

As elsewhere in India, health services in Karnataka are being provided by the State at three levels, Primary, Secondary and Tertiary. Over the years, Primary Health Care has received considerable attention and resources through the State's own funding as also external agencies, through various IPP Projects. The main objective of these projects is to promote integrated family welfare through strengthening of the health infrastructure and planned improvement of the delivery system and the quality of health services at the primary level.

The Secondary Level of Health Care, comprising all rural hospitals of varying types and magnitude, has not, however, received attention and assistance on a similar scale. There are also marked disparities in the availability of infrastructure and the quality of services provided by these hospitals, across different regions in the State. The fact that the broad network of the secondary hospitals discharging, as they do, the essential first referral services all over the State, is only a natural and organic extension of the Primary Health Care system has now been recognized all over the world. It is heartening to note that the World Bank, whose involvement in health care in India has always been deep and comprehensive, has also recognized the need for revamping and modernising this essential tier of health care.

The preliminary project proposal prepared earlier by the Department of Health & Family Welfare, Government of Karnataka has now become full-fledged. A Workshop held on Feb. 28-March 1, 1995, has provided a comprehensive set of norms for a wide range of hospital services and facilities at different levels of Health Care. This was followed up by setting up a large number of expert Working Groups on various components of the Project, whose recommendations have been incorporated in this document.

The Project aims at identifying and filling the glaring gaps within our Health Care System and also its thorough restructuring, in accordance with modern norms and the felt needs of the present day. Care has been taken to make this revised project proposal comprehensive, covering the entire range of health systems in the State, excluding the tertiary and super-speciality levels. The proposal includes several new components, such as formulation of an effective surveillance system, specific interventions for the disadvantaged sections, the Scheduled Castes and Tribes, and, Women, and measures to strengthen the institutional capability at various levels, as also an outline of the needed reforms in the Health sector.

I am thankful to Dr NK. Shah of the World Health Organization in India for having readily agreed to provide financial support for preparing this Project Proposal.

I would like to place on record the Department's sincere gratitude to Mr. H.D. Devagowda, Honourable Chief Minister and Mr. H.C. Mahadevappa, Honourable Health Minister for their constant support and interest in the Project. I would also like to convey my appreciation to the members of the Project Preparation Committee and

the large number of experts, without whose tireless efforts the Project could not have won the race against time. My thanks are specially due to Mr Sanjay Kaul, former Secretary-II, in this department for his personal involvement from the beginning. I am also deeply thankful to Mr. D.V.N. Sarma, whose role has been much deeper and more integral to the Project than one normally expects of a Consultant.

Gautam Basu
Secretary, to Government,
Health & Family Welfare Department,
Govt. of Karnataka
Place : Bangalore

Date : 22, January 1996

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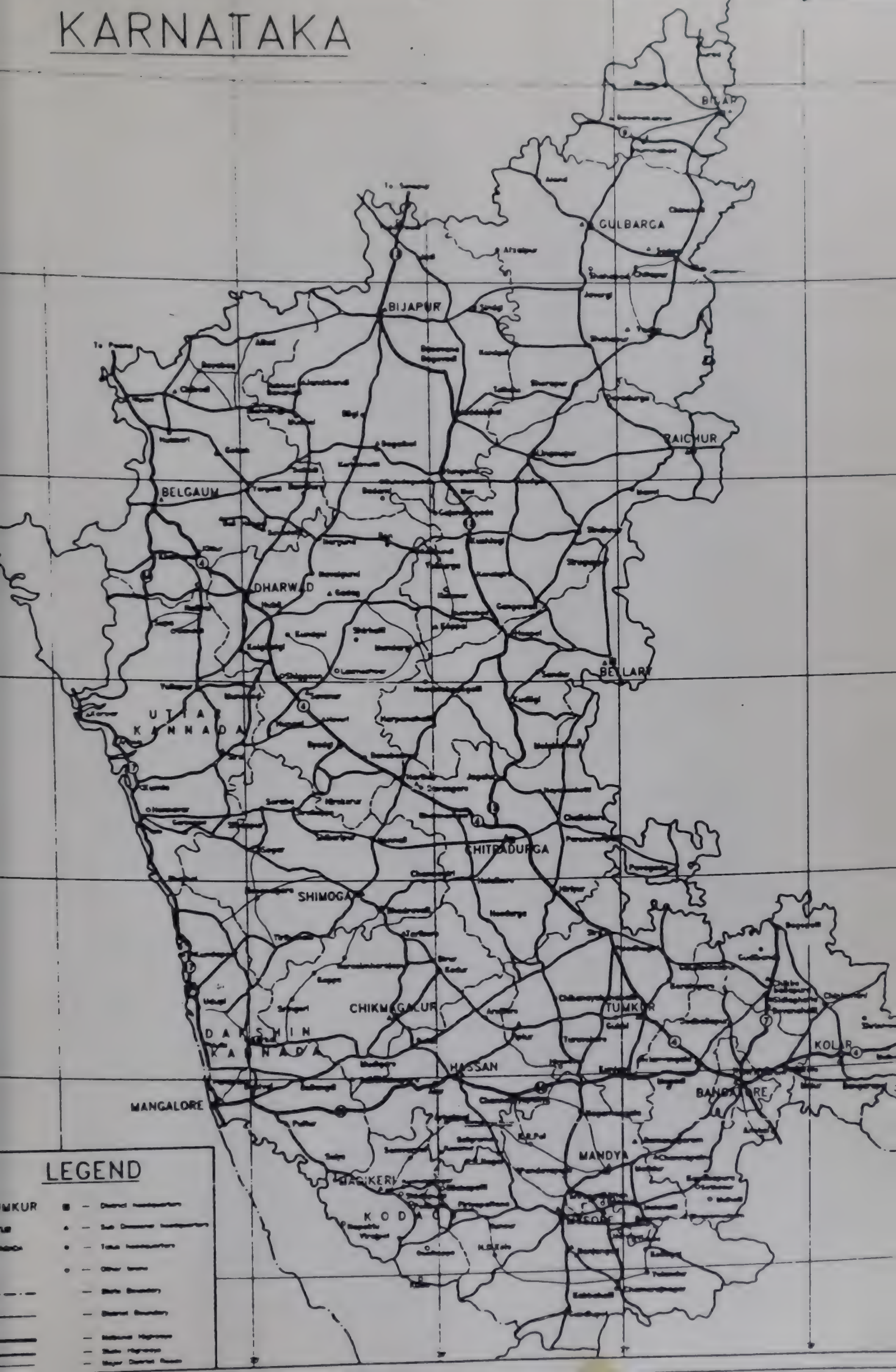
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KARNATAKA



LEGEND

- — District headquarters
- ▲ — Sub-District headquarters
- — Taluk headquarters
- — Other towns
- — State Boundary
- — District Boundary
- — National Highway
- — State Highway
- — Major District Road

Chapter 1

Profile of Karnataka

1.1. Area and Administrative Divisions

Karnataka is located in the south-west part of India and lies between latitudes 11° 5" N and 19° N and longitudes 74° E and 78° E. It is bounded, in the clockwise direction, by the States of Goa, Maharashtra, Andhra Pradesh, Tamil Nadu, Kerala and the Arabian Sea. The area of the State is 191,791 sq. km. and constitutes 5.38 percent of the area of the country. The twenty districts of the State are grouped into four Revenue Divisions with head quarters at Bangalore, Belgaum, Gulbarga and Mysore.

Division	Districts
Bangalore	Bangalore, Bangalore (Rural), Chitradurga, Kolar, Shimoga and Tumkur
Belgaum	Belgaum, Bijapur, Dharwad, Uttara Kannada
Gulbarga	Bellary, Bidar, Gulbarga and Raichur
Mysore	Chikmagalur, Dakshina Kannada, Hassan, Kodagu, Mandya and Mysore

1.2. Population, Language and Religion

The population of the State in 1991 was 44.98 million and accounted for 5.31 percent of the population of India. In terms of population size and geographic area, Karnataka ranks eighth among the States.

Kannada is the mother tongue of 65.7 percent of the population. There are regional concentrations of linguistic groups. Tulu and Konkani are the mother tongues of 59 percent of the population of Dakshina Kannada, while Konkani is the mother tongue of 22 percent of the population of Uttara Kannada. Kodava is the mother tongue of 28 percent of population of Kodagu. The Telugu speaking population is concentrated in Kolar district (52 percent) and is also present in sizeable numbers in Bangalore, Chitradurga, Tumkur and districts of Gulbarga Division bordering Andhra Pradesh. Marathi is spoken in the districts bordering Maharashtra namely, Belgaum (21 percent) Bidar (19 percent) and Uttara Kannada (9 percent). People with Malayalam as mother tongue are concentrated in Kodagu (22.9 percent) and Dakshina Kannada (12.9 percent) districts bordering Kerala. The Tamil speaking population is concentrated in Bangalore (16 percent), Kolar (9 percent) and Mysore (5 percent). The Urdu speaking population is distributed in all districts but they form only 5 percent of the population of Mysore division while in other divisions the Urdu speaking population ranges between 10 to 14 percent.

Hindus, including Jains, Buddhists and Sikhs form 86 percent of the population of the State, while 11 percent are Muslims and 2 percent are Christians.

1.3. Demographic Features

The compound annual growth rate of the population of Karnataka was 1.93 percent in the decade 1981-91. The decline in population growth rate has been more rapid in Karnataka than in India. While in Karnataka, the compound annual growth rate declined from 2.40 percent during the decade 1971-81 to 1.93 percent in 1981-91, that for India declined marginally from 2.23 percent to 2.16 percent.

The sex ratio expressed as the number of females to thousand males declined from 963 in 1981 to 960 in 1991 in the State. Similar decline occurred at the national level (934 in 1981 to 927 in 1991).

In 1991, the urban population accounted for 30.91 percent of the population of the State as compared to 25.71 percent for India. Nearly 30 percent of the urban population of the State lives in Bangalore Urban Agglomeration and another 35 percent in twenty urban agglomerations with population over 100,000. The remaining 35 percent of the urban population live in 233 towns. The rural population is distributed over 27,024 villages.

The mean age at marriage of females in Karnataka was estimated for the year 1981 at 19.2 years as compared to 18.3 years for the country.

In 1991, the literacy rate among those aged seven years and above was 67 percent among males and 44 percent among females, which is marginally higher than that for the country (64 percent for males and 39 percent for females).

The proportion of workers to total population in 1991 was 53.9 percent among males and 29.3 percent among females. The corresponding rates for 1981 were 54.6 among males and 25.3 among females. There has been a three percent shift away from agriculture and household industry to other occupations. However, agriculture continues to be the occupation for 63 percent of the main workers.

Scheduled Castes and Scheduled Tribes formed respectively, 16.4 and 4.0 of the total population in 1991.

1.4. Vital Rates

The Crude Birth Rate (CBR) for Karnataka is estimated at 25.5 for the year 1993. The CBR for urban Karnataka was 23.1 while for rural Karnataka it was 26.7. Estimates of birth rates by district for the year 1993 reveal that Chikmagalur had the lowest birth rate of 19.9 and Raichur the highest birth rate of 35.1.

CBR over 29	Raichur (35.1), Bidar (34.9), Gulbarga (33.3), Bijapur (32.0) Bellary (29.2).
Between 24-28	Kolar (27.2), Dharwad (27.1), Chitradurga (26.9), Belgaum (28.9).
Between 22 to 24	Uttara Kannada (23.5), Tumkur (23.2), Shimoga (22.4) Bangalore (22.3).
Below 22	Mysore (21.6), Mandya (21.0), Kodagu (21.0) Hassan (20.6), Dakshina Kannada(22.3),Chikmagalur (19.9).

The crude death rate for the year was 8.5 for the State while it was 6.0 for urban Karnataka and 9.4 for rural Karnataka. The infant mortality rate estimate for the year 1993 was 67 for the state — 41 for urban Karnataka and 73 for rural Karnataka.

1.5. Regional Variations

As mentioned earlier, the population of Karnataka is distributed in twenty districts and four revenue divisions. There are wide variations in the demographic characteristics across the four divisions as may be seen in Table 1.5.

Gulbarga Division comprising the districts of Gulbarga, Bellary, Bidar and Raichur along with Bijapur district of Belgaum Division, is the most backward in terms of all demographic, social and health indicators. These five district show higher growth rates over the ten year period for the years 1981-91. The highest growth was, however, registered in Bangalore District, reflecting rural-urban migration and rapid urban growth. The decadal growth rate of the population for the decade 1981-91 has declined in all districts excepting Bidar, Bijapur, Gulbarga and Raichur. The annual compound growth rate of the population of these four districts increased from 1.99 percent in the decade 1971-81 to 2.25 percent in the decade 1981-91, suggesting that the decline in mortality has been more than the decline in fertility. On the other hand, in the remaining sixteen districts the annual compound growth rate declined from 2.50 percent during the decade 1971-81 to 1.85 percent during the decade 1981-91.

The sex-ratio is the most favourable in Mysore Division, with Dakshina Kannada and Hassan registering a female to male sex- ratio of over 1.0. This division also has the highest mean age at marriage and expectedly the lowest mean age at marriage exists in the four districts of Gulbarga Division together with the adjacent Bijapur district.

In general, one can state that there is a North South divide with the Southern parts of the State, being somewhat better placed in demographic status, compared to their Northern counterparts.

Table 1.5 Demographic Characteristics of Districts

							Percent Literate 1991*		Scheduled	
	Thousand Persons 1991	Density sq. km. 1991	Annual Growth Percent 1981-91	Sex Ratio 1991	Mean Age at Marriage 1981	Percent Urban 1991	Male	Female	Castes % of Total 1991	Tribes % of Total 1991
Bangalore	4,839.2	2,210	3.31	903	20.2	85.8	83.1	69.0	14.7	1.1
Bangalore Rural	1,673.2	288	1.43	950	N.A	18.2	61.1	38.9	19.5	3.0
Chitradurga	2,180.4	163	2.06	944	19.2	27.0	43.5	36.2	19.8	14.6
Kolar	2,216.9	224	1.53	966	19.1	23.3	63.0	38.1	25.7	6.9
Shimoga	1,909.7	351	1.43	961	20.5	26.5	71.1	51.4	17.7	3.9
Tumkur	2,305.8	135	1.55	959	19.2	16.6	66.6	42.1	17.7	7.3
Bangalore Division	15,125.2	281	2.12	939	19.8	42.6	71.6	51.1	18.4	5.4
Belgaum	3,583.6	498	1.87	959	19.4	23.9	65.5	38.7	11.4	2.3
Bijapur	2,928.0	270	2.00	965	17.3	23.6	70.6	41.3	17.4	1.4
Dharwad	3,503.2	415	1.75	945	19.2	35.0	71.7	45.5	11.7	3.0
Uttara Kannada	1,220.3	89	1.29	967	21.2	24.2	76.1	56.7	7.5	0.8
Belgaum Division	11,235.0	279	1.80	957	19.0	27.3	69.9	43.5	12.6	2.1
Bellary	1,890.1	116	2.41	957	18.1	29.9	59.3	32.5	19.3	8.8
Bidar	1,255.8	184	2.35	953	17.6	19.5	59.5	31.0	20.7	8.3
Gulbarga	2,582.2	629	2.18	962	17.5	23.5	52.3	24.9	23.7	4.1
Raichur	2,309.9	281	2.62	978	17.5	20.8	49.7	22.3	17.2	7.8
Gulbarga Division	8,037.9	227	2.39	964	17.7	23.6	54.4	26.9	20.3	6.9
Chikmagalur	1,017.3	205	1.10	977	20.8	16.9	70.6	51.5	19.3	2.6
Dakshina Kannada	2,694.3	225	1.26	1063	22.4	28.3	84.7	68.3	6.5	3.9
Hassan	1,569.7	112	1.47	1000	20.2	17.4	68.9	45.1	17.4	1.1
Kodagu	488.5	46	0.56	989	21.8	16.1	74.5	61.4	12.1	8.3
Mandya	1,644.4	155	1.49	962	18.5	16.2	59.1	36.9	13.8	0.7
Mysore	3,165.0	308	2.00	953	19.3	29.8	56.1	37.9	18.9	3.2
Mysore Division	10,579.1	170	1.49	993	20.4	23.6	67.8	49.3	14.4	2.9
Karnataka	44,977.2	235	1.93	960	19.2	30.9	67.3	44.3	16.4	4.3

* Literacy percent among aged 7 years and over

1.6. Per Capita Income

In 1992-93, the per capita net domestic product for Karnataka was Rs. 5898 at current prices which is marginally higher than that for India (Rs. 5583). The per capita income varied between districts. Kodagu district was at the top with a per capita income of Rs. 10,810 and Bidar at the bottom with a per capita income of Rs. 3,725.

Over Rs. 9,000	Kodagu (10,810), Bangalore (9,190)
Rs. 6,000 to 9,000	Belgaum (6,206), Uttara Kannada (6,339), Mysore (6,400), Bangalore Rural, Dakshina Kannada (7,203), Chikmagalur (8,065)
Rs. 5,000 to 6,000	Tumkur (5,045), Dharwad (5,108), Chitradurga (5147), Bellary (5,293), Shimoga (5,812).
Below Rs. 5,000	Bidar (3,725), Kolar (4,151), Raichur (4,159), Bijapur (4,414), Gulbarga (4,732), Mandya (4,827), Hassan (4,924).

Chapter 2

Health Status and Epidemiology

2.1. Morbidity

According to the Forty Second Round of National Sample Survey conducted in 1986-87, 40.3 persons per thousand population suffered from some ailment or other during 30 days preceding the date of interview and 89.6 percent of them consulted a doctor. Those who were admitted as inpatients during the preceding 365 days accounted for 21.8 per thousand population.

2.1.1. Morbidity Pattern among Users of Government Facilities

The estimates of outpatients and inpatients per thousand population per year for the government hospitals derived from the results of the Forty Second Round of National Sample Survey conducted in 1986-87 were 168.2 and 12.0 respectively. These estimates are close to those estimated from data on morbidity compiled from returns submitted by hospitals in the government sector for the year 1992. The average number of registrations in outpatient department is 176.8 per thousand population and for inpatients it is 12.3 per thousand population.

Between 1982 and 1992 there has been, in the government hospitals, an overall increase in outpatient consultations as well as admission as inpatients. The outpatients have increased by 47 percent and the inpatients by 65 percent while, the increase in total population has been 21 percent. The increase in outpatients and inpatients at government hospitals between the years 1982 and 1992 may be due to increase in morbidity level or in utilisation of hospital services or both. It may also be due to increase in cost of medical care in the private sector reflected in the data from NSS and NCAER surveys presented in Chapter 4.

The increase in treatment as outpatients for the respiratory, digestive, genito-urinary systems, complications due to pregnancy and the puerperium, and, injuries and poisoning has been above the average of all diseases.

The increase in inpatients for treatment of infectious diseases, neoplasm, endocrine, nutritional & metabolic diseases and immunity disorders, mental disorders, diseases of circulatory system, diseases of genito-urinary system, complications due to pregnancy and the puerperium, diseases due to injuries and poisoning, has also been higher than the increase in total hospital admissions.

Table 2.1.1 presents morbidity data by category as per International Classification of Diseases, 1975, Revision IX moulded to the Indian conditions.

Table 2.1.1 Morbidity Pattern by Category of Diseases Recorded in Hospitals in the Government Sector (1992)

Category of Disease	Per Thousand Population			
	Outpatients		Inpatients	
	1982	1992	1982	1992
Infectious and Parasitic Diseases 001-139	26.73	24.16	1.37	2.35
Neoplasm 140-239	0.80	0.90	0.09	0.18
Endocrine, Nutritional & Metabolic Diseases and Immunity Disorders 240-279	5.24	6.30	0.28	0.43
Diseases of blood and blood forming organs 290-319	12.57	14.77	0.40	0.51
Mental disorders	0.24	0.44	0.01	0.05
Diseases of the Nervous System and sensory organs 320-389	9.07	10.32	0.47	0.53
Diseases of the circulatory system 390-459	3.54	3.82	0.30	0.45
Diseases of the respiratory system 460-519	27.30	33.64	1.53	1.23
Diseases of the digestive system 520-579	7.99	11.32	0.62	0.49
Diseases of the genito-urinary system 580-629	1.90	4.72	0.24	0.34
Complications of pregnancy child birth, and the puerperium 630-679	2.29	4.95	1.14	2.38
Diseases of the skin and sub-cutaneous tissue 680-709	6.70	13.27	0.06	0.22
Diseases of the musculo skeletal system and connective tissue 710-739	2.47	2.86	0.11	0.11
Congenital anomalies 740-759	0.06	0.11	0.03	0.02
Certain conditions originating in the perinatal period 760-779	0.44	0.50	0.04	0.04
Signs ,symptoms and ill-defined conditions 780-799	1.61	1.79	0.17	0.13
Injury and poisoning 800-999	32.83	42.92	1.93	2.83
Total	141.77	176.80	8.78	12.32

2.1.2. Death Rate of Inpatients

The deaths in hospitals for treatment of various diseases has increased from 1.77 percent of hospital admissions in 1982 to 2.63 percent in 1992. The disease groups in which the death rate has increased by more than 80 percent are diseases of the circulatory system, congenital anomalies, conditions originating in the perinatal period, ill-defined conditions and injury and poisoning.

During the same period the number of patients admitted in government hospitals has increased from 332,546 to 548,812 representing an increase of 65.0 percent putting pressure on hospital facilities. The pressure on hospitals to admit more patients without commensurate increase in infrastructure and other facilities may have resulted in increased mortality among hospital inpatients.

The data on deaths among inpatients of government hospitals by disease group is presented for the years 1982 and 1992 in Table 2.1.2.

Table 2.1.2 Deaths among Inpatients of Government Hospitals

Category of Disease	Percent of those admitted for the specific disease	
	1982	1992
Infectious and Parasitic Diseases 001-139	3.92	3.27
Neoplasm 140-239	5.54	3.86
Endocrine, Nutritional & Metabolic Diseases and Immunity Disorders 240-279	3.98	2.34
Diseases of blood and blood forming organs 290-319	2.21	2.34
Mental disorders	0.39	1.27
Diseases of the Nervous System and sensory organs 320-389	1.47	1.33
Diseases of the circulatory system 390-459	4.75	9.07
Diseases of the respiratory system 460-519	0.46	1.48
Diseases of the digestive system 520-579	1.61	2.47
Diseases of the genito-urinary system 580-629	2.13	1.88
Complications of pregnancy child birth, and the puerperium 630-679	0.13	0.16
Diseases of the skin and sub-cutaneous tissue 680-709	0.00	0.51
Diseases of the musculo skeletal system and connective tissue 710-739	0.17	0.28
Congenital anomalies 740-759	2.87	6.94
Certain conditions originating in the perinatal period 760-779	6.73	12.40
Signs, symptoms and ill-defined conditions 780-799	1.87	7.30
Injury and poisoning 800-999	1.33	3.95
Total	1.77	2.63

2.2. Mortality

The crude death rate (CDR) in Karnataka for 1993 has been estimated at 8.0 per thousand by the Sample Registration System. The CDR for rural Karnataka was 9.5 as compared to 5.2 for urban Karnataka. During the same period, the infant mortality rate (IMR) has been 67 per thousand births. The IMR in rural areas was 79 as compared to 41 in urban areas. Over 70 percent of infant mortality is accounted by neonatal mortality.

It will be observed from the infant mortality data available from 1981 census and presented in Table 2.2 that there is considerable variation across districts.

Table 2.2 Infant Mortality by District (1987)

District	IMR	District	IMR	District	IMR
Bangalore	60	Dakshina Kannada	55	Tumkur	77
Belgaum	67	Dharwad	85	Mysore	67
Bellary	92	Hassan	80	Raichur	90
Bidar	81	Gulbarga	83	Shimoga	83
Bijapur	103	Kodagu	57	Uttara Kannada	94
Chikmagalur	77	Kolar	69		
Chitradurga	71	Mandya	84	Karnataka	81

2.3. Causes of Death

During the decade 1981-91, the share of deaths due to parasitic diseases declined while that due to diseases of the circulatory system increased. The share of deaths among females due to complications of pregnancy and child birth declined.

In 1991, diseases of the circulatory system constituted the single largest cause of deaths (23.5 %) followed by infectious and parasitic diseases (19.6%). Injury and poisoning took the third place (14.6%). The fourth place was taken by conditions originating in the perinatal period (8.8%). Diseases of the respiratory system and diseases of the nervous system came fifth and sixth, accounting for 7.8% and 6.1% of deaths respectively. These six diseases accounted for 80.4 percent of deaths.

Analysis by age revealed that infant deaths formed 12.9 percent of total deaths. The major causes of infant deaths were slow foetal growth, foetal malnutrition and immaturity (28.7%), hypoxia, birth asphyxia and other respiratory conditions (20.2%) and all other causes originating in the perinatal period (17.6%).

The age group 15-34 accounted for 28.4 percent of deaths of females due to all causes as compared to 16.3 percent in case of males.

Table 2.3 Percent Distribution of Deaths in Karnataka by Major Cause Groups

Cause	Male		Female	
	1981	1991	1981	1991
Infectious and Parasitic Diseases	28.7	19.8	27.3	19.4
Neoplasm	3.6	4.3	3.4	4.2
Endocrine, Nutritional & Metabolic Diseases and Immunity Disorders	4.0	3.2	4.4	3.6
Diseases of blood and blood forming organs	2.7	1.6	4.5	2.6
Mental disorders	0.1	0.9	0.2	0.2
Diseases of the Nervous System and sensory organs	5.5	5.9	6.2	6.4
Diseases of the circulatory system	16.9	24.5	13.9	21.8
Diseases of the respiratory system	7.4	8.3	6.5	6.9
Diseases of the digestive system	9.0	6.2	5.6	4.2
Diseases of the genito-urinary system	1.8	1.3	1.4	1.4
Complications of pregnancy child birth, and the puerperium			6.2	1.8
Diseases of the skin and sub-cutaneous tissue	0.3	0.2	0.3	0.3
Diseases of the musculo skeletal system and connective tissue	0.1	0.2	0.1	0.1
Congenital anomalies	1.4	0.1	1.2	0.1
Certain conditions originating in the perinatal period	7.1	8.7	8.7	9.1
Signs, symptoms and ill-defined conditions	2.0	1.3	2.3	1.6
Injury and poisoning	9.4	13.6	7.8	16.3
	100.0	100.0	100.0	100.0

Source: Report on Medical Certification of Cause of Death in Karnataka, 1991; Directorate of Economics and Statistics, Govt. of Karnataka, Bangalore.

Chapter 3

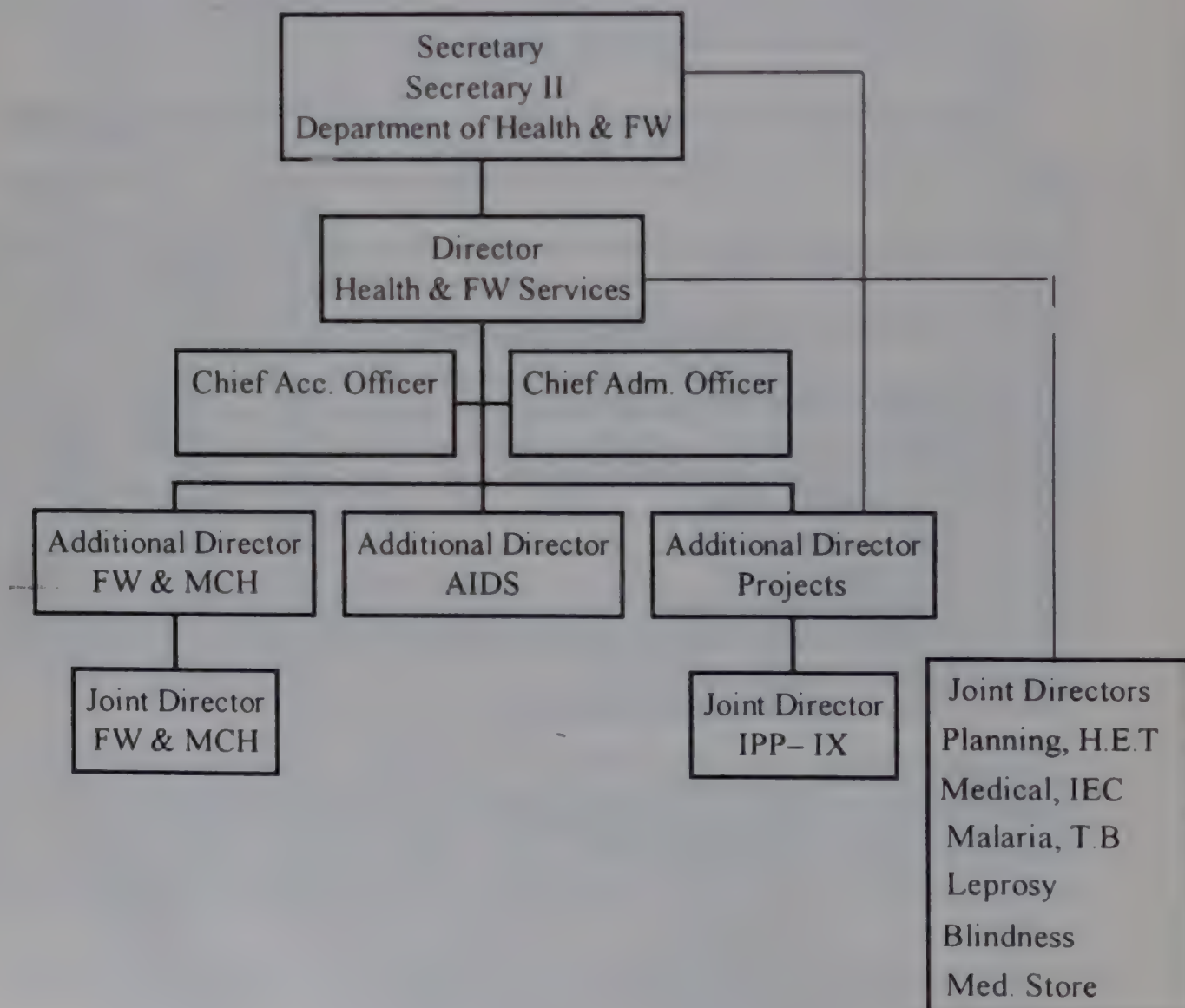
Organisation of Public Health Care System

3.1. Organisation at The State Level

The Secretary, Health & Family Welfare is responsible for formulating and implementing policies of the Government in the field of Health Care. He is assisted in the Secretariat by an Secretary II, Deputy Secretary (Medical Education), Deputy Secretary (Health) and an Internal Financial Advisor.

The Director, Medical Education (DME), Director, Health and Family Welfare Services (DHS), Director, Indian Systems of Medicine and Homeopathy and the Drugs Controller report to the Secretary.

Organisation Chart of Public Health Care System



The Medical Colleges run by the State and the government hospitals attached to the teaching institutions including private medical colleges, nursing colleges and nursing schools come under the jurisdiction of the Director Medical Education. While the teaching staff are under the administrative control of the DME, the staff of the hospitals attached to the teaching institutions are under the control of DHS.

The Director of Health Services is responsible for Public Health, Primary Health Care, and Secondary level Hospitals. He is assisted by three Additional Directors — one each for MCH & FW, AIDS, and Projects. The Additional Director (Projects) is responsible for implementing externally assisted projects such as IPP-IX. He is also designated as ex-officio Additional Secretary, to facilitate issue of Government Orders after obtaining the approval of the Secretary, Health.

At the Directorate level, The Director Health & Family Welfare Services is assisted by a Chief Administrative officer, a Chief Accounts Officer and nine Joint Directors.

3.2. Organisational set-up in the Districts

There is one Divisional Joint Director in-charge of each of the four Revenue Divisions and report to the DHS. In each district, there is a District Surgeon to manage the district hospital and a District Health Officer (DHO) to manage primary health care, all hospitals other than those under the District Surgeon, and programmes to control diseases. The activities managed by the DHO fall under the jurisdiction of the Zilla Panchayat. Consequently, he reports to the Chief Executive Officer (CEO) of the Zilla Panchayat, who is an IAS officer. The DHOs are under the administrative control of the DHS in so far as evaluation of their performance, promotions and transfers are concerned. The organisational set-up under the DHO is almost similar to that under DHS.

The Zilla Panchayats receive grants from the State Government to meet expenditure on health care. Such grants and actual expenses are reflected in the Health Budget of the State, under the District Sector component.

The Karnataka Panchayat Raj Act, 1993, which is now in force in the State, specifies the functions to be performed by the Zilla Panchayats, Taluka Panchayats, and the Grama Panchayats. The matters to be dealt with by the Zilla Panchayat, in respect of Health and Family Welfare, at the district level, are: (1) Management of hospitals and dispensaries excluding the District hospital and other hospitals under the direct management of Government (above 50 beds); (2) Implementation of maternity and child health programmes; (3) Implementation of family welfare programmes; (4) Implementation of immunisation and vaccination programmes. The Taluka Panchayats deal with: (1) Promotion of Health and Family Welfare programmes; (2) Promotion of immunisation and vaccination programmes at the Taluka level; and, (3) Health and sanitation at fairs and festivals. At the village level, the Grama Panchayats deal with: implementation of family welfare programmes, preventive measures against epidemics, regulation of sale of food articles, participation in immunisation programmes, licensing of eating establishments and regulation of offensive and dangerous trades. Apart from

operating the District Sector budget, the Zilla Panchayats also implement such State Sector schemes as are entrusted to them by Government.

3.3. Structure of Health Care System

The health care delivery system in Karnataka has been structured on the basis of national norms which have been formulated with the objective of integrating promotive, preventive and curative aspects of health care. The health services delivery structure existing in the State is described below:

- a. For each District (Approximately 2 million population): One District Hospital with 250 beds with specialised curative services
- b. For each Sub-District (Approximately 500,000 population): One Sub-District Hospital with 100 beds with curative services
- c. For each Taluk/block (100,000 to 120,000 population): A Community Health Centre (CHC) level hospital with 30 beds with specialised medical care services in gynaecology, obstetrics, surgery and medicine.
- d. For an area covering 30,000 population: A Primary Health Centre (PHC) to render preventive, promotive and curative services.

Chapter 4

Health Facilities in Karnataka and their Usage

4.1. Medical Practitioners

There are nearly 17,000 practising doctors in Karnataka according to a survey conducted by ORG. The number of doctors in the private sector in the State is estimated at about 11,000. The number of doctors in the Government sector is 5,828, accounting for 35 percent of the doctors.

About 82 per cent of doctors in the Government sector are general duty doctors. The distribution of doctors in the Government sector by specialisation is presented in Table 4.1

Table 4.1 Government Medical Practitioners by Specialisation.

Specialisation	Number	Percent
General Duty Medical Officer	4775	82
Specialists	1053	18
General Medicine	157	
Obstetrics & Gynaecology	168	
General Surgery	145	
Paediatrics	130	
Anaesthesia	114	
Orthopaedics	56	
Ophthalmology	54	
ENT	39	
Skin	34	
Psychiatry	23	
Pathology	20	
Tuberculosis	30	
Forensic Medicine	13	
Radiology	24	
Super specialities	46	
Total	5828	100

4.2. Hospitals

The existing bed strength of government hospitals in Karnataka is 31,675 excluding those run by Defence Services, Railways, Employee State Insurance and Public Sector undertakings which are not open to the general public. Out of this bed strength, 3,207 beds are in hospitals for specific diseases such as Tuberculosis, infectious diseases etc., leaving 28,468 beds for general use. The Primary Health Centres/ Units account for 6653 beds leaving 21815 beds for the secondary and tertiary sectors.

A Census of private hospitals conducted by STEM during August-October, 1995 revealed that there are in Karnataka, 1709 private hospitals with total bed strength of 40,900. Of these, 43 hospitals with 393 beds are speciality hospitals, 451 hospitals with 4,105 beds are for maternity homes and the remaining 1,215 hospitals with total bed strength of 36,402 are general hospitals.

The total number of beds in general hospitals in the Government sector and private sector put together is 68,975 for the estimated population of 48.58 million in 1995 or 1.428 hospital beds per thousand persons as compared to the norm of one bed per thousand persons set by the Planning Commission. The beds in the Government sector account for 40.53 percent of total beds as compared to the norm of 66.7 percent set by the Planning Commission.

Table 4.2.1 presents the estimated number of institutions and existing bed capacity in Government and private sectors.

Table 4.2.1 Distribution of Institutions and Bed Strength
(Excluding Speciality Hospitals)

Sector and Type	Number of Institutions	Total Bed Strength	Percent of Beds in Govt. Sector	Percent of Total Beds
Govt. Hospitals used for Teaching	11	5957	20.93	8.64
Govt. run CHCs, Sub-District and District	228	15858	55.70	22.99
PHCs/PHUs	1875	6653	23.37	9.65
<i>Total Govt. Sector</i>	<i>2114</i>	<i>28468</i>	<i>100.00</i>	<i>41.27</i>
Pvt. Hospitals	1215	36402	89.87	52.77
Pvt. Maternity Homes	451	4105	10.13	5.95
<i>Total Pvt. Sector</i>	<i>1666</i>	<i>40507</i>	<i>100.00</i>	<i>58.73</i>
Total	3781	68975		100.00

The distribution of hospitals in the Government sector by size and type is presented in Table 4.2.2.

Table 4.2.2 Distribution of Govt. Hospitals by Type and Size

Number of Beds	PHU	PHC	CHC/ Taluk	Sub- Division	Others*	Total
0-9	601	1104	34	0	0	1739
10-19	16	111	20	3	0	150
20-49	5	35	92	9	0	141
50-99	0	3	31	16	3	53
100-300	0	0	11	6	9	26
301-500	0	0	0	0	10	10
501 & Over	0	0	0	1	10	11
Total	622	1253	188	35	32	2130

* Includes, District, Major and Teaching Hospitals.

The distribution of the beds by primary, secondary and tertiary sectors is presented in Table 4.2.3. The planning Commission recommended that 15 percent of beds should be at the primary level, 70 percent at the secondary level and 15 percent at the tertiary level. The actual distribution of hospital beds at different levels in Karnataka is 20.9 percent at the primary level, 55.7 percent at the secondary level and 23.4 percent at the tertiary level.

Table 4.2.3 Distribution of Existing Beds by Sector

Sector	Number of Beds	Percent of Total
Primary	6,653	20.93
Secondary	15,858	55.70
Tertiary	5,957	23.37
	28,468	100.00

The distribution of hospitals and beds in the Government sector by district is presented in Table 4.2.4.

Table 4.2.4 Distribution of Hospitals and beds in Government Sector by District

District	Population in 1995 (000's)	No. of Hospitals		No. of Beds		Beds per thousand population		
		Govt.	Private	Govt.	Private	Govt.	Private	Both
Bangalore	5518.5	33	186	3184	7216	0.577	1.308	1.885
Bangalore Rural	1908.1	41	42	577	594	0.302	0.311	0.614
Belgaum	3786.1	95	196	1565	3858	0.413	1.019	1.432
Bellary	2062.7	49	65	1250	722	0.606	0.350	0.956
Bidar	1335.9	43	52	758	716	0.567	0.536	1.103
Bijapur	3097.3	86	86	1323	2645	0.427	0.854	1.281
Chikmagalur	1089.0	43	34	864	442	0.793	0.406	1.199
Chitradurga	2366.4	38	71	1932	1851	0.816	0.782	1.599
Dakshina Kannada	2878.1	121	138	2073	7329	0.720	2.546	3.267
Dharwad	3752.1	93	207	2010	3312	0.536	0.883	1.418
Gulbarga	2737.2	78	82	1374	1474	0.502	0.539	1.040
Hassan	1676.6	40	40	1083	834	0.646	0.497	1.143
Kodagu	516.6	36	18	1322	330	2.559	0.639	3.198
Kolar	2366.2	67	67	1419	1522	0.600	0.643	1.243
Mandya	1767.2	43	40	804	726	0.455	0.411	0.866
Mysore	3398.6	74	86	2839	3141	0.835	0.924	1.760
Raichur	2502.1	70	48	935	562	0.374	0.225	0.598
Shimoga	2071.6	45	64	1235	1115	0.596	0.538	1.134
Tumkur	2442.2	88	84	1020	1075	0.418	0.440	0.858
Uttara Kannada	1313.3	58	62	901	1046	0.686	0.796	1.483
Karnataka	48585.7	1241	1666	28468	40507	0.586	0.834	1.420

Note: Primary Health Centres/ Units with beds and beds in them are included under Govt. sector

At the state level, the existing beds per thousand persons, including the beds at the tertiary level but excluding speciality hospitals in the government sector, is 0.586 and 0.834 in the private sector bringing the total availability to 1.420 as compared to the norm of one per thousand beds set by the Planning Commission. However, there is considerable variation across districts — Raichur at the bottom with lowest number of beds (0.6) and Dakshina Kannada at the top (with 3.3 beds). In five of the districts the availability of beds is below the norm of one bed per thousand persons. The beds in the government and private sectors are in the ratio of 40:60 as against the planning Commission norm of 67:33.

The variation in beds per thousand persons is much wider if one looks at taluka level. Only 36 talukas have beds exceeding the norm of one per thousand. In 55 talukas the beds available range between 0.5 to 1.0 per thousand population. Sixty three talukas have less than 0.5 beds per thousand persons.

Table 4.2.5 Distribution of Talukas
by Beds per Thousand Persons

Bed per Thousand Persons	Number of Talukas	Percent of Total Talukas
<0.300	19	10.92
0.300 to 0.499	44	25.29
0.500 to 1.000	55	31.61
≥ 1.000	56	32.18
	174	100.00

4.3. Usage of Medical Services

Forty Second Round (1986-87) of National Sample Survey provides extensive information on utilisation of services by the community. The National Council of Applied Economic Research (NCAER) conducted Household Survey of Health Care Utilisation and Expenditure in 1990 and again in 1993. The reference period for recalling ailments was the preceding thirty days in NSS Forty Second Round and 1993 Survey of NCAER. While the field work of NSS survey was conducted round the year, the field work of NCAER was carried out in the summer months (May to June) during which the morbidity rates are generally higher than in the remaining months. Information relating to Karnataka and where relevant for India culled from the NSS and NCAER reports is presented in this section.

4.3.1. Outpatient Service

NSS survey of 1986-87 indicated that 1.68 million persons or 4.03 percent of total population of Karnataka had an ailment during thirty days prior to the date of interview. Ninety percent of those who had an ailment had consulted a doctor. The average duration of sickness was eleven days. NCAER study of 1993 on the other

hand reported an illness rate of 11.1 percent and 85 percent of those who reported illness sought treatment.

According to NSS survey, only 2.6 percent of the patients had gone for systems of medicine other than Allopathic system as against 4.5 percent indicated by NCAER study.

When the respondents who did not take treatment were asked in the NSS study to spell out the reasons for not getting treated, 70 percent stated that the ailment was not considered serious. Finance was the second most important reason advanced by 15 percent of the respondents. The findings of NCAER study are in agreement with these findings. Respondents in rural areas mentioned that non-availability of health care services nearby as an important reason for not going in for treatment.

Table 4.3.1.1 Reasons for not Taking Treatment

Reason for not getting treated	Rural	Urban	Combined
Not considered serious	67.61	81.63	71.94
Financial reasons	14.63	11.26	13.59
No facility / long waiting	5.45	0.71	3.99
Lack of faith	3.40	1.73	2.88
Other reasons	8.91	4.67	7.60
Total	100.00	100.00	100.00

NSS study revealed that private doctors and hospitals run by Non-Government Organisations (NGOs) accounted for 62.9 percent of the treatments both in rural and urban areas. Those who received treatment in institutions run by State and Central Governments and public sector undertakings accounted for 37.1 percent of the total treated.

Table 4.3.1.2 Percent Treated as Outpatients by Type of Facility

Facility	Rural	Urban	Combined
Private Doctor	41.51	43.19	42.03
Private Hospital / Institution	19.81	23.32	20.89
Public Hospital	25.72	27.00	26.12
PHC	8.47	1.71	6.38
Public Dispensary	1.27	1.23	1.26
ESI	0.94	1.36	1.07
Others	2.28	2.09	2.22
Total	100.00	100.00	100.00

The findings of NCAER study are at variance with those of NSS survey. NCAER study reported that 59.9 percent of rural population and 45.5 percent of urban population utilised facilities in the government sector. It was also found that utilisation of health services in the private sector is more among women as compared to men.

According to NSS study, forty-five percent of the outpatients in rural areas and thirty-eight percent in urban areas did not pay for medical services. In one-third of the cases, both in urban and rural areas, payments for medical services were made to

private hospitals/doctors. Employers' Medicare schemes paid for one out of eight cases in urban areas and one out of forty cases in rural areas. In rural areas, 20 percent of the patients made payments to Government hospitals; the corresponding percentage in urban area was 15. On an average, Rs 50 were paid to government hospitals and Rs. 64 to private hospitals and doctors.

The expenditure per illness reported by NCAER study does not differ from NSS estimates for illnesses treated in government hospitals. However the expenditure in private hospitals is 264 Rupees per illness as compared to 64 Rupees per illness reported in NSS study. This indicates those while charges in the government hospitals remained the same during 1996 - 1993; those in private hospitals increased four folds.

Table 4.3.1.3 Percent Paying for Medical Services and Amount Paid

	Rural	Urban	Combined
Percent of Outpatients			
No payment made	44.72	37.57	42.51
Employers' Medicare	2.40	12.51	5.53
Payment made to Govt. Hospital	19.97	15.17	18.49
Payment made to Pvt. Hospital /Doctor	32.91	34.17	33.30
Not identified party to whom payment was made	0.00	0.58	0.18
Total	100.00	100.00	100.00
Expense in Rupees			
Average amount paid to Govt. Hospital	41.93	68.37	50.10
Average amount paid to Pvt. Hospital / Doctor	58.64	74.66	63.59

4.3.2. Inpatient Services

It has been estimated that 909,000 persons or 0.22 percent of the population were admitted during 365 days preceding the date of interview to hospitals as inpatients for treatment. The NCAER study indicated tat 0.83 percent of the population were hospitalised during the preceding 30 days. This high percent of hospitalised cases may be due to the survey being carried out in summer months when water borne diseases which require hospitalisation are more prevalent than in other seasons. Another factor may be that rural population tend to postpone hospitalisation to summer months when there is no agricultural activity

While NSS study revealed that the admission of females as in-patients is considerably lower in rural areas than in urban areas; the NCAER study indicted that there is no gender bias.

Table 4.3.2.1 Gender Difference in Rural of Hospital Admission

	Sex Ratio (Females to thousand Males)	
	Total Population	In-patients
Rural Karnataka	975	760
Urban Karnataka	930	966
Combined	960	800

The utilisation of inpatient services in government and private sector institutions is presented in Table 4.3.2.2. Hospitals in the government sector in Karnataka are utilised by 58 percent of the rural patients and 49 percent of the urban patients while at the national level 60 percent of the rural as well as urban patients used health facilities in the government sector. The results of NCAER study show a higher level of utilisation of government hospitals than that indicated by NSS study. Sixty-one percent of rural patients and 58 percent of urban patients utilise services of government hospitals. In Karnataka, the private sector plays a greater role in providing health facilities especially in urban areas as compared to that in the country.

Table 4.3.2.2 Utilisation of Inpatient Services by Sector (NSS Study)

Facility	Percent of Inpatients					
	Rural		Urban		Combined	
	Karnataka	India	Karnataka	India	Karnataka	India
Public Hospital	55.31	55.40	48.51	59.51	53.21	56.47
PHC	2.71	4.34	0.39	0.75	1.99	3.40
Total Government Sector	58.02	59.74	48.90	60.26	55.20	59.87
Private Hospital / Institution	32.94	31.99	40.49	29.55	35.27	31.35
Nursing Home	5.62	4.86	9.05	7.04	6.68	5.43
Charitable Institution	2.51	1.71	1.26	1.91	2.12	1.76
Others	0.91	1.70	0.29	1.24	0.72	1.58
Total Private Sector	41.98	40.26	51.09	39.74	44.79	40.12
Total	100.00	100.00	100.00	100.00	100.00	100.00

In rural areas nearly 60 percent use free wards while in urban areas less than 40 percent use free wards.

Table 4.3.2.3 Distribution of Inpatients by Type of Ward (NSS Study)

Type of Ward	Percent of Inpatients		
	Rural	Urban	Combined
Free	58.50	36.31	51.64
Paying General	29.36	34.61	30.98
Paying Special	12.14	29.08	17.38
Total	100.00	100.00	100.00

The average stay of an inpatient in Government hospitals is considerably higher than that in private hospitals both in rural and urban areas. The average duration of stay in rural areas is 16.9 days as compared to 14.8 days in urban areas mainly due to the fact that more patients go to government hospitals in rural areas as compared to urban areas.

Table 4.3.2.4 Average Length of Stay in Hospital (NSS Study)

Payment Category	Average Stay (days)	
	Rural	Urban
Government Hospital	17.7	20.2
Free Ward	20.3	20.3
Paying General Ward	11.4	23.6
Paying Special ward	20.5	11.5
Private Hospital	12.0	10.0
Free Ward	9.8	8.9
Paying General Ward	14.6	9.8
Paying Special ward	11.8	11.6
Combined	16.9	14.8

Nearly 80 percent of the inpatients in Karnataka make payments to the institutions, whether they are in the Government sector or private sector, as compared to 70 percent at the national level. The average amount paid by an inpatient in the State is higher than the national average.

Table 4.3.2.5 Distribution of Inpatients by Payment Category and Amount Paid

Payment category	Rural		Urban	
	Karnataka	India	Karnataka	India
No Payment %	16.8	23.2	12.3	19.6
Employers' Scheme %	3.8	6.2	10.3	13.0
Payment to Institution %	79.5	70.7	77.4	67.4
Amount Paid Rs.				
to Govt. Hospital	280	320	525	385
to Pvt. Hospital	1048	733	1178	1206
to both	815	597	1029	933
Total Expenditure for treatment	919	853	1231	1183

The NCAER study reveals that the average expenditure in government hospitals in 1993 was 293 Rupees per illness in rural areas and Rs. 465 per illness in urban areas. These estimates are close to those of NSS. The expenses in private hospitals in 1993 are 2250 Rupees or twice the amount spent in 1986-87.

According to NSS survey, medicines and X-Ray, ECG and EEG facilities are provided free by Government hospitals to both urban and rural patients in nearly two thirds of the cases. In case of other services such as other diagnostic tests, physiotherapy, radio therapy, and surgery nearly 90 percent of patients in rural areas who are in need of such services are provided free service by government hospitals. In urban areas, surgical services are provided free of charge in nearly 60 percent of cases and diagnostic tests and physiotherapy and radio therapy are provided free of charge in 70 percent of the cases.

Hospitals in the private sector provide free services to about 9 percent of the patients in rural areas and 3 percent in urban areas.

Table 4.3.2.6 Percentage Distribution of Hospitalised Cases by Types of Medical Services, Sector and Region (NSS Survey)

	Medicine		X-Ray, ECG, EEG		Other Diagnostic Tests		Physiotherapy /Radiotherapy		Surgical Operation	
Sector	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
Government	54.26	47.46	57.71	48.69	58.18	48.93	57.93	48.93	58.14	48.92
Private	45.74	52.54	42.29	51.31	41.82	51.07	42.07	51.07	41.86	51.08
Government										
Free	63.25	60.20	22.20	31.40	52.30	47.15	51.89	46.58	20.02	19.18
Partly Free	20.86	16.73	1.68	0.76	1.06	0.76	1.09	0.78	0.74	0.00
On Payment	13.16	22.57	8.54	8.54	4.97	16.68	5.04	17.04	1.911	13.65
Not Needed	2.73	0.50	67.58	58.70	41.67	35.41	41.98	35.60	77.33	67.17
All	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Private										
Free	9.58	5.92	1.18	1.54	5.95	2.45	5.97	2.51	8.77	0.49
Partly Free	1.27	0.86	0.31	0.0	0.79	0.00	0.78	0.00	0.00	0.00
On Payment	88.06	90.41	41.36	44.36	61.05	62.60	60.97	62.85	21.12	32.42
Not Needed	1.09	1.81	57.15	54.10	32.21	34.95	32.28	34.64	70.11	67.09
All	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Both										
Free	38.70	30.33	13.31	16.37	32.92	24.32	32.57	24.07	15.31	9.63
Partly Free	11.90	8.41	1.10	0.37	0.95	0.37	0.96	0.38	0.43	0.00
On Payment	47.42	60.03	22.42	31.97	28.42	40.13	28.57	40.44	9.85	23.24
Not Needed	1.98	1.23	63.17	56.34	37.71	35.18	37.90	35.11	74.31	67.13
All	100	100	100	100	100	100	100	100	100	100

Note: Not needed includes not taken

The breakdown of expenditure on non-hospitalised illnesses from 1993 NCAER survey is presented in Table 4.3.2.7.

Item of Expense	Rural	Urban
Fees & Medicine	93.11	109.60
Clinical Tests	4.21	12.35
Special Diet	3.14	8.15
Transport	28.39	14.12
Miscellaneous	1.42	1.35
Total	130.27	145.56

4.4. Bed Occupancy

The bed occupancy is estimated on the basis average duration of stay presented in section 4.3.2. As the estimates of duration of stay for Government hospitals are very high, alternative estimates of bed occupancy based on duration of stay in Government hospitals at 25 percent over private hospitals have also been worked out and presented in Table 4.4.1 These estimates are only indicative of the level of bed occupancy. In the Government sector, the bed occupancy is very low in PHCs while, in all other hospitals

the occupancy is reasonably good. The bed occupancy in the private sector is close to 70 percent.

Table 4.4.1 Estimated Bed Occupancy

	Total Bed strength	Bed occupation in Patient Years		Percent Occupancy	
		Alter-native 1	Alter-native 2	Alter-native 1	Alter-native 2
PHCs	6592	980	784	14.9	11.9
Other Govt. Hospitals	25248	24382	19506	96.6	77.3
All Govt. Hospitals	31840	25362	20290	79.6	63.7
Private Hospitals	17668	11994		67.9	67.9

Alternative 1: Based on NSS Estimates of duration of stay in Govt. Hospitals

Alternative 2: Duration of stay in Govt. Hospitals as 25 percent over NSS estimates for Private Hospitals

Chapter 5

Public Expenditure

5.1. Expenditure of the State

The Net State Domestic Product at 1980-81 prices has been increasing at annual rate of 5.88 percent during the period 1991-91 to 1994-95. The annual increase in per capita Net Domestic Product is estimated at 4 percent.

The annual expenditure (Revenue and Capital) of the State Government is around 22 percent of State Net Domestic Product. The Breakdown of revenue and capital expenditure (Plan and Non-Plan) is presented in Table 5.1.1.

Table 5.1.1 Structure of Revenue and Capital Expenditure

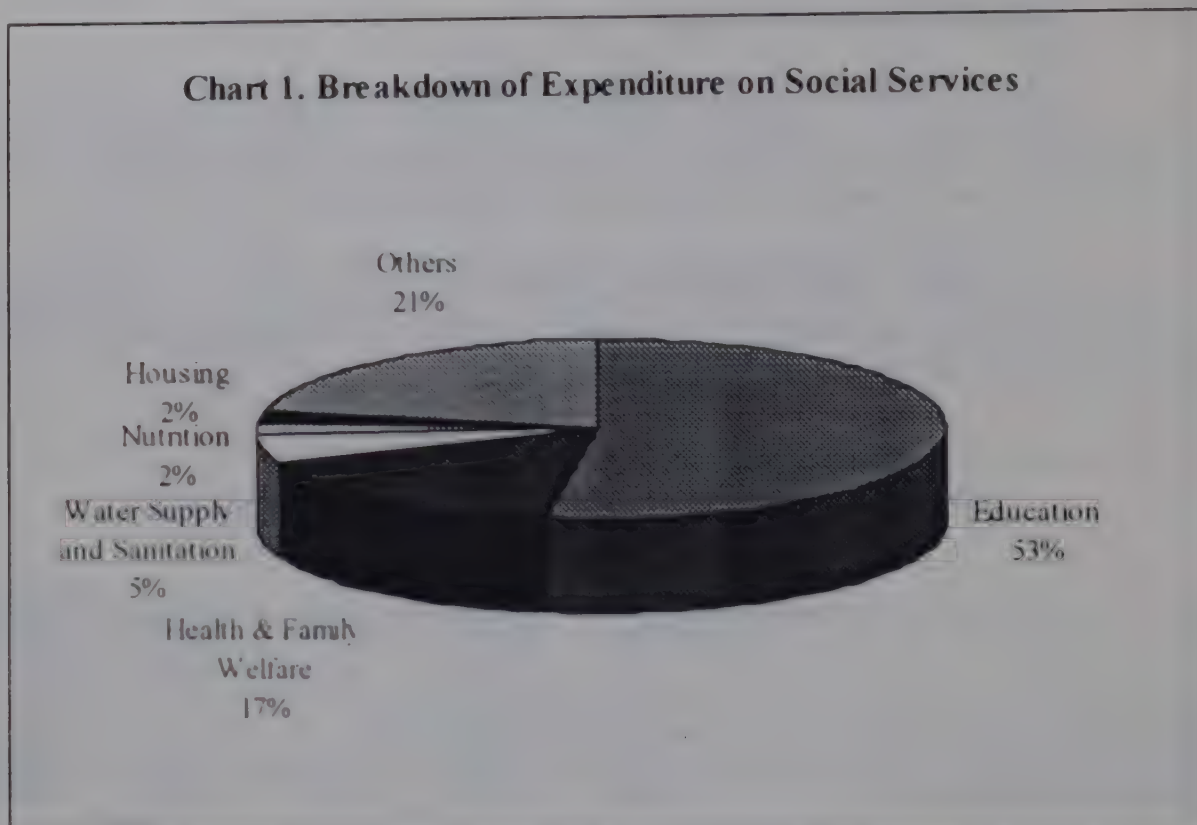
Billion Rs.						
	1990-91 Acct.	1991-92 Acct.	1992-93 Acct.	1993-94 Acct.	1994-95 Rev. Est	1995-96 Budget
Revenue Expenditure						
General Services	11.746	14.220	16.997	19.049	23.941	27.728
Social Services of which	15.389	18.928	20.823	23.785	28.577	34.325
Education	8.020	9.614	10.978	12.781	15.349	17.755
Health & Family Welfare	2.430	2.954	3.602	3.912	4.872	5.688
Water Supply & Sanitation	0.061	0.810	0.958	1.186	1.641	2.267
Others	4.329	5.551	5.285	5.906	6.715	8.615
Economic Services	11.593	15.214	16.851	18.009	22.523	27.346
Grants-in-Aid	0.983	1.179	1.247	1.493	1.476	1.537
Total Revenue Expenditure	39.711	49.541	55.917	62.336	76.517	90.936
Capital Expenditure						
General Services	0.114	0.136	0.091	0.230	0.255	0.300
Social Services of which	0.177	0.325	0.387	0.521	0.879	1.117
Education	0.017	0.036	0.058	0.091	0.149	0.078
Health & Family Welfare	0.066	0.053	0.071	0.102	0.122	0.316
Water Supply & Sanitation	0.000	0.000	0.000	0.000	0.000	0.000
Others	0.094	0.236	0.258	0.328	0.608	0.723
Economic Services	6.258	7.398	7.288	11.128	9.544	10.412
Grants-in-Aid	0.000	0.000	0.000	0.000	0.000	0.000
Total Capital Expenditure	6.549	7.859	7.866	11.879	10.678	11.830

5.2. Expenditure on Social Services

The expenditure of the State Government on Social Services has been hovering around 38 percent of total revenue expenditure. It has increased at an annual rate of

16.7 percent from Rs 3.403 billion in 1980-81 to Rs 34.325 billion in 1995-96. Adjusting for inflation, the annual rate of increase in expenditure on social services has been 6.4 percent.

The average annual expenditure on health related items of expenditure was Rs 5.535 billion during the period 1990-95, and accounted for 25.7 percent of expenditure on Social Services.

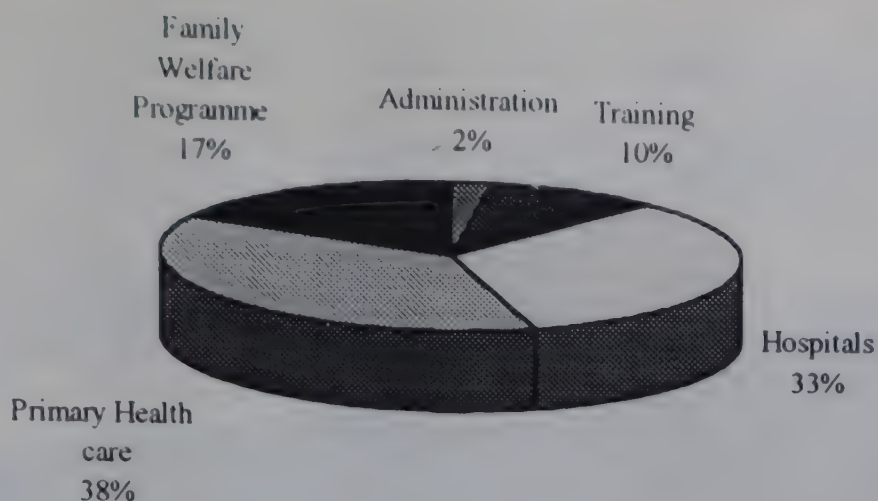


5.3. Expenditure on Health

The outlay on Health and Family Welfare increased from Rs 0.647 billion in 1980-81 to Rs 5.363 billion in 1994-95, representing an annual compound growth of 16.3 percent. The per capita outlay increased at an annual rate of 14.3 percent from Rs. 17.6 to Rs. 115.0. Adjusting for the observed annual rate of inflation of 8.3 percent during 1981-82 to 1992-93 in Karnataka, the annual increase in real terms in per capita expenditure is 6.0 percent.

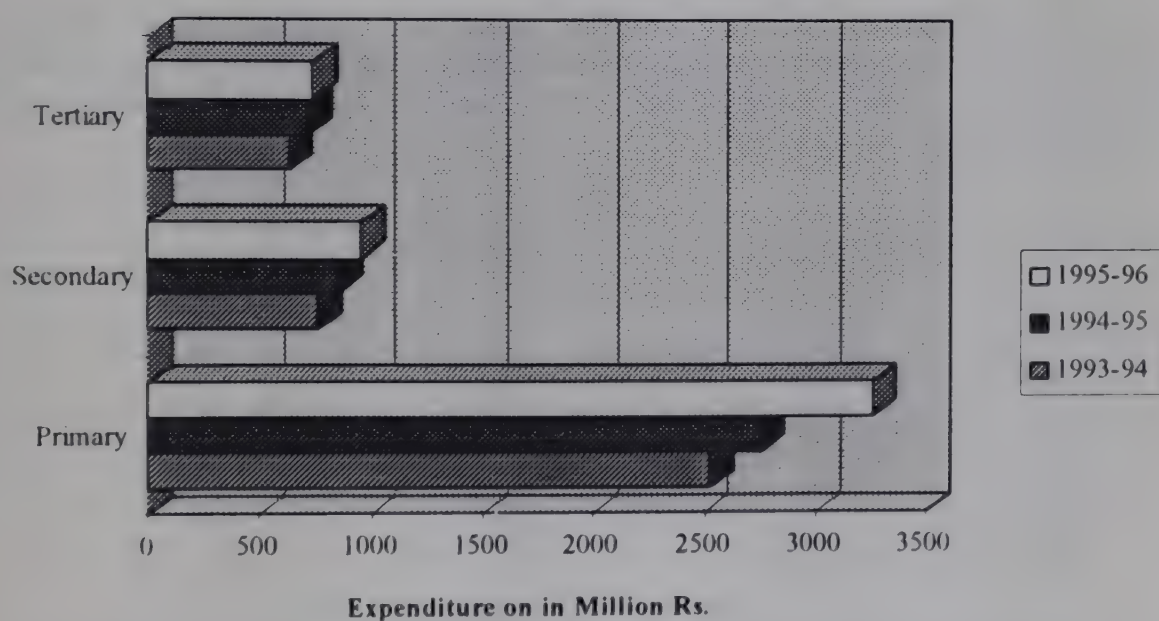
Primary Health Care has a major share (38 percent) in expenditure of Health Department. Secondary and tertiary hospitals come next with (33 percent) share in expenditure. Family Welfare accounts for 17 percent, Education & Training for 10 percent and Administration for 2 percent.

Chart 2. Breakdown of Expenditure on Health



Primary health care takes the lion's share of expenditure on health care services with a 64.8 percent share. Secondary and tertiary sectors respectively account for 19.4 and 15.8 percent share.

Chart 3. Size of Different Sectors in Health Care



The breakdown of expenditure on health by sector for the period 1991-91 to 1995-96 is presented in Table 5.3.1.

Table 5.3.1 Structure of Health Revenue Expenditure

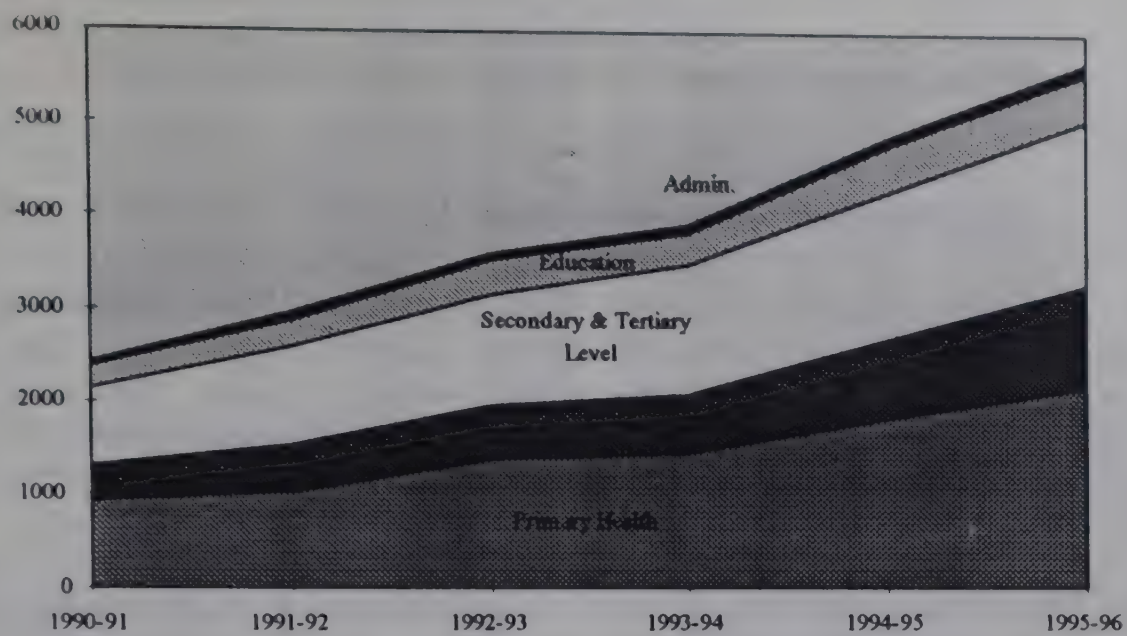
Million Rs.

	1990-91 Acct.	1991-92 Acct.	1992-93 Acct.	1993-94 Acct.	1994-95 Rev. Est	1995-96 Budget
Plan						
Administration	0.38	0.25	0.22	0.19	0.56	0.69
Medical Education/ Training	2.11	3.75	3.25	3.89	10.87	11.54
Secondary & Tertiary Level Health Care	8.56	9.59	13.12	16.34	21.09	23.97
Primary Health Care	30.64	25.80	36.33	42.18	62.68	83.75
Family Welfare Programme	35.17	50.38	54.98	59.42	79.07	106.65
Total Health Expenditure	76.85	89.77	107.90	122.02	174.27	226.60
Non-Plan						
Administration	5.88	8.25	7.82	8.28	9.44	11.11
Medical Education/ Training	20.11	25.15	34.55	30.17	38.44	41.11
Secondary & Tertiary Level Health Care	74.60	93.18	104.22	124.04	139.79	152.82
Primary Health Care	62.48	75.54	101.97	103.12	120.81	132.06
Family Welfare Programme	3.10	3.48	4.08	3.63	4.43	5.14
Total Health Expenditure	166.17	205.60	252.65	269.23	312.90	342.25
Plan and Non-Plan						
Administration	62.541	84.957	80.412	84.632	99.99	118.048
Medical Education/ Training	222.19	289.02	378.062	340.592	493.028	526.495
Secondary & Tertiary Level Health Care	831.512	1027.731	1173.376	1403.83	1608.802	1767.931
Primary Health Care	931.212	1013.335	1382.969	1452.94	1834.879	2158.126
Family Welfare Programme	382.706	538.662	590.607	630.424	835.003	1117.891
Total Health Expenditure	2430.161	2953.705	3605.426	3912.418	4871.702	5688.491

The expenditure on family welfare has been increasing by 23 percent per annum while that on medical education and primary health grew at 18 percent per annum. Expenditure on secondary and tertiary care had the lowest growth rate of 16 percent per annum.

Chart 4. Breakdown of Expenditure on

Million Rupees



Chapter 6

Health Sector Issues

6.1. Integration of PHCs and Secondary Hospitals

The India Population Projects have concentrated on strengthening the infrastructure for delivery of primary health care services, improving the quality of services and generating demand for family welfare services. The institutions strengthened are sub-Centres and Primary Health Centres. Under IPP-IX, rehabilitation of Community Health Centres (CHC) as well as upgrading of selected CHCs into first level Referral Units (FRUs) is being taken up.

The PHCs and CHCs in a district are independent and each unit reports directly to the District Health Officer (DHO). The Sub-District or Taluka hospitals with less than 100 beds also report directly to the DHO. On the other hand the District Hospital and Sub-District hospitals with 100 beds or more fall under the jurisdiction of the District Surgeon. There is no linkage between District Hospital with Sub-District Hospitals, Sub-District Hospitals with CHCs, and, in turn CHCs with PHCs falling within its catchment. As a result, technical supervision and up-gradation of skills of medical and paramedical staff are inadequate.

The common perception is that the higher the share of expenditure on hospitals, the lower the equity in the overall health system. This is based on the assumption that if more resources are devoted to primary care programmes and facilities, it will be possible to provide relatively low cost preventive and curative services to a larger segment of the population who are more vulnerable. Both hospitals and PHC programmes cover multiple and overlapping functions. PHC is associated with community-level delivery programmes, whereas hospital services are delivered through large facilities socially detached from the community. Hospitals and PHCs should be more integrated, and the services provided by the health sector should be balanced and inter linked, from lower level preventive and curative outreach programs to upper level facilities. Similarly, there is need to have integration between the health and the family welfare structures. The question remains, however, of the appropriate balance of services within the integrated system. Efforts to integrate lower-level hospitals could increase the effectiveness of outreach and community-based programs. Hospitals can also provide technical support for lower level services and provide a focus for training of skilled manpower

6.2. Resource Allocation

Not only is there a need to increase the allocation of resources to the public health system to match the needs, but also for a more balanced distribution between the primary, secondary and tertiary sectors. The emphasis on primary health care has

resulted in under funding of hospitals at the secondary level. This under funding has led to deterioration in the quality of buildings and equipment, supply of drugs and staffing especially medical and skilled paramedical personnel. Many of the buildings need to be rehabilitated by providing continuous water supply, uninterrupted power, clean and adequate number of toilets and arrangement for managing solid wastes. Most of the equipment has become obsolete and needs to be replaced. The quality of medical care needs improvement. Therefore, there is need for enhancing the allocation of funds to the public health system, and to introduce efficiency in the utilisation of resources. A reallocation of resources will have to be based on the cost effectiveness of different components of the health system.

6.3. Planning and Management

There are major weaknesses in the management of the health system in the State. At the Directorate level, there is lack of clarity in the roles among various functionaries. There is also a lack of adequate administrative and financial accountability. At the lower levels, the hiatus is often sharper. While the medical officer is required to manage the hospital, all decisions on medical and financial aspects are taken at the Directorate. In specific areas the delegation of powers such as the maintenance of infrastructure viz., building and equipment, both at the district and State levels is poor leading to deterioration of assets.

There is also a need to have an institutionalised system to study on a continuing basis:

1. changes in epidemiological profile and disease burden;
2. cost effective means of utilising resources; and
3. continuous upgrading of manpower skills.

6.4. Quality of Services

The hospital system in the State suffers from major handicaps. Budgets meant for maintaining equipment and building need to be stepped up. Diagnostic facilities, equipment, ambulance and trained personnel require strengthening. Existing norms for staffing at various levels have to be reviewed, given the heavy pressure on the hospital system which currently results in poor quality of services. Similarly, norms for equipment and the range of clinical services at each level need to be worked out on a rational basis. The infrastructure needs thorough overhauling as well as expansion to meet the needs of the over strained hospital system. Management skills at the hospital level need to be continually upgraded. The overall environment in which the hospitals function need improvement.

6.5. Access and Equity

Access to public health facilities in the state is uneven. Even where physical facilities exist, the quality and range of services is poor. Typically, in areas of the state where health status is poor, the gaps in infrastructure are large.

There is need to have significant increase in the bed capacity in poorly served regions. Only in one third of the talukas, the persons per bed is equal to or less than the norm of 1679 persons per bed, determined on the basis of epidemiology. In 29 percent of the talukas, the persons per bed, ranges between 1,700 to 3,000. In 32 percent of the talukas, the bed availability ranges between 3,000 to 5,000 persons per bed. Persons per bed exceeds 50,000 in 6 percent of the talukas.

The health infrastructure is relatively underdeveloped in the Northern districts of Gulbarga, Bidar, Raichur, Bellary, Dharwad and Bijapur.

There is also a major urban-rural divide with most of the well equipped hospitals located in a few urban agglomerations of the State. The rural poor have limited access to critical health referral services. In the urban areas also, there are imbalances. In major metropolitan cities such as Bangalore, there are glaring inadequacies in the first referral network. The availability of infrastructure is inadequate, as it has to cope not only with fast rising urban population, but also with the pressure from rural areas.

There is no conscious effort to focus on reducing morbidity and mortality rates among the disadvantaged segments of the society, such as Scheduled Castes and Scheduled Tribes. Utilisation of services by women is poor. This issue is intricately related to the low level of women's status, lack of public health education, as also the physical inadequacy of the hospital services required by women.

6.6. Work Force

In some parts of the State there is a severe shortage of staff, both in respect of doctors, nursing staff as well as paramedical personnel. Due to various reasons the recruitment procedures have been slow. The situation is made worse by many cases of unauthorised absence and indiscipline in the work-force, adversely affecting the quality of services. Manpower development, specially clinical skills training and training in the maintenance of equipment have remained neglected areas.

6.7. Referral System

At present, the referral system does not function effectively. This is due to the following reasons: (i) Overloading of hospitals with self-referrals, (ii) lack of confidence in lower-level facilities because of perceived low quality of care; (iii) lack of organisational and management links between hospitals at various levels. An effective

referral system has to be designed by focusing on three important areas: the structure of the referral system, management co-ordination and quality improvement

It is necessary to define the mix of patients to be served and the services to be made available at each tier of the hospital system. Referral criteria have to be established for diagnosis and treatment for different disease categories. Manuals need to be prepared, information disseminated, and training needs met for medical, paramedical and laboratory staff.

The effectiveness of the referral system depends on the (i) quality of services at all levels; (ii) awareness among the public about the type of services available at each level of the health system and (iii) enforcement of procedures to ensure that patients do not bypass one level, without the consent of the health personnel at the lower level.

While designing the referral system it is necessary to involve the community. Wide publicity has to be undertaken to disseminate information about the diagnostic, treatment and surgical services available at the Primary level (CHC), Secondary level (Sub-District Level) and District level Hospitals.

6.8. Management of Communicable and Other Diseases

The recent outbreak of plague and recurrence of malaria in Karnataka serves to emphasise the need to more effectively manage the communicable diseases. Hospital data show that Karnataka has high incidence of the following diseases:

Tuberculosis,
Malaria,
Filaria, and
Blindness

While there are national programmes for the control of diseases, there is a need to strengthen the surveillance system for their early detection and management. There is also a need to effectively integrate the hospital system with the management and control of diseases at the primary level.

6.9. Burns and Injuries

The casualty departments of hospitals are understaffed and under equipped to handle the increasing number of cases of burns and injuries. There is an urgent need to improve the casualty wards by providing basic facilities in each hospital. There is also need to address the gaps in providing emergency health care services for victims of accidents, specially along major highways and in the proximity of factories

6.10. Chronic Illnesses

The increase in life expectancy that has occurred over the last four decades and that is continuing to increase will pose greater problems of medical care for the population in the management of chronic illnesses, specially among the older age groups.

6.11. Role of the Private sector

In terms of number of patients being served, the role of the private sector appears very significant and increasing. According to NSS forty second round (1986-87) Forty two percent of out patients and thirty five percent of inpatients are treated by the private sector. The NCAER Survey of 1993 has shown that forty-six percent of outpatients and 40 percent of inpatients were treated by the private sector. There is no monitoring mechanism and code developed by the Government or the Medical Association to ensure that quality health care is provided by the private sector and unlicensed and unqualified practitioners are not allowed to provide services. The private sector is also under-utilised in managing communicable diseases, respiratory infections and high risk births. There is also need to utilise the services of voluntary organisations, specially in remote and inaccessible areas. In the hospitals, contracting out services to private agencies has not been tried out, though it could lead to significant improvements in efficiency.

6.12 Cost Sharing and Sustainability

The appropriateness of adopting cost sharing principles and fixing charges depends on the type of service provided. Hospital services are mostly patient related curative services. There is scope for cost sharing on curative services provided, a mechanism exists to adjust fees depending on the patient's ability to pay. Studies have shown that cost sharing accompanied by improvement in quality can lead to increased utilisation. However, the additional revenues generated may not be adequate to cover fully the expenditure in improving quality through better facilities in terms of equipment and drugs. Cost sharing may be a step in restoring equity; the poor may benefit proportionately more than the non-poor. Cost sharing with a dispensation that provides for ploughing back of resources will be appropriate for promoting efficiency and equity.

Cost sharing will augment resources for the health sector and should, therefore, lead to improvements in supply both in qualitative and quantitative terms. Sustainability would also be promoted to a large extent because the revenue accrued would finance a portion of the operational costs, thereby relieving the budgetary constraint. Cost sharing would result in improvements in the quality of care if the resources generated internally are ploughed back for improving the availability of drugs and maintenance of facilities.

Chapter 7

Project Objectives and Approach

7.1. The Project Objectives

The broad objectives of the project are:

1. Improvement in the performance and quality of health care services at the district and sub-district level of the health care system
2. Narrowing the current coverage gaps by facilitating access to health care delivery, and
3. Achievement of better efficiency in the allocation and use of health resources.

The emphasis of this project will be on district and sub-district (or secondary) level health care institutions as the interventions at this level provide critical support to the entire primary health care network, enhancing its effectiveness and credibility and establishing essential linkages with the tertiary level. Strengthening implies that the existing facilities and their support systems would be upgraded and developed to function more effectively rather than merely increasing the number of hospitals. The project specifically aims to strengthen the sectoral capacity for planning, management and policy development.

7.2. Project Components

The project components and sub-components are:

a). Management Development and Institutional Strengthening:

1. Improving the institutional framework for policy Development;
2. Strengthening management and implementation capacity; and
3. Developing surveillance capacity for major communicable diseases.

b). Improving Service Quality, Access and Effectiveness.

1. Extending/renovating Community, Taluka and District hospitals;
2. Upgrading their clinical effectiveness;
3. Improving referral mechanism and linkages with primary and tertiary level, and
4. Improving access and equity to disadvantaged sections

Objectives and Components of the Project

OBJECTIVES :

1. Improve efficiency in allocation of health resources through policy and institutional development.
2. Improve performance of health care system through improvements at first referral and selective coverage of primary health care.

COMPONENTS :

1. Management Development and Institutional Strengthening.

2. Improving Service Quality Access and Effectiveness

SUB-COMPONENTS

1. Improving the institutional framework for policy development.

1. Extending / renovating Community/ Taluka and District Hospitals.

2. Strengthening management and implementation capacity.

2. Upgrading their clinical effectiveness.

3. Developing surveillance capacity for major communicable diseases.

3. Improving referral mechanism and linkages with primary and tertiary level.

4. Improving access and equity to disadvantaged areas

Chapter 8

Linkage With Other Projects

There has been a continuous improvement in the quality and expansion of coverage of primary health care services. As on March 31, 1994, there were in Karnataka, 7793 sub centres, and 1253 Primary Health Centres (PHC) and 621 Primary Health Units (PHU) for providing primary health care. As compared to the national norm of one sub-centre for 5,000 population and one PHC for 30,000 population, Karnataka has one sub-centre for 3,977 persons and one PHC for 25,488 persons. In addition, in backward areas, Karnataka has one PHU for ever 15,000 persons. Thus the State has basic infrastructure for providing primary health care which is better than that prescribed under the norms. However, there are some districts, mostly in northern Karnataka, in which the number of sub-centres and the PHCs are below the norm. Overall, 382 sub-centres and 31 PHCs need to be set up to ensure that no district falls short of the norms for primary health care institutions. India Population Projects — IPP-I and IPP-III together covered seventy percent of the population of the state. IPP-VIII and IPP-IX have also been launched in Bangalore City and thirteen districts of the State respectively. The objectives of these projects is strengthening service delivery and improving the quality of primary health care and family welfare.

8.1. India Population Project-I

IPP-I was supported by Ministry of Health and Family welfare, Government of India, with assistance from the International Development Association (IDA) and the Swedish International Development Authority (SIDA). The project was implemented during the period April 1973 - March 1980 in the six districts of Bangalore Revenue Division — Bangalore Urban, Bangalore Rural, Chitradurga, Kolar, Shimoga and Tumkur. The project area had as per 1991 census a population of 15.1 million comprising 33.6 percent of the population of the state.

The project aimed at

1. expansion of health infrastructure,
2. linking the provision of family planning services with a supplementary nutrition programme,
3. creation of population centre to evaluate performance on a continual basis and to design and operate MIES and evaluate performance, and
4. provision of technical assistance.

IPP - I (Karnataka) consisted of the following wings

1. construction or engineering wing to take care of the construction of building and other physical facilities;

2. implementation wing for recruitment and appointment of staff, provision of supplies and equipment and supplementary nutrition; and
3. population centre for conducting research studies and monitoring and evaluation of the project.

The activities of all the three wings were co-ordinated by a Project Co-ordinator. The responsibility for implementation of the project was entrusted to Project Governing Board (PGB) chaired by the Minister for Health and Family Planning, Government of Karnataka. A steering committee with the Secretary, Health as Chairman was formed to assist the PGB and to carry out such functions as were assigned to it by the PGB and furnish reports to the PGB for ratification of actions taken.

The institutions contracted to provide services were: (1) Administrative Staff College, Hyderabad for consultancy in management information, technical report preparation and training; (2) National Institute of Nutrition, Hyderabad for assistance in the implementation, monitoring and evaluation of supplementary feeding programme; and (3) Central Food Technological Research Institute to manufacture and supply energy food for the supplementary feeding programme.

Sixty-five 'major' buildings, 694 sub-centres and 97 additional buildings were constructed under IPP-I. Of these buildings, 784 were provided with safe drinking water and 417 with compound walls. As many as 111 four wheeled vehicles were provided and equipment and furniture worth Rs. 12 million was purchased and put in place.

8.2. India Population Project-III

IPP-III was implemented during 1984-1992, with support from the Ministry of Health and Family Welfare and the IDA, in Belgaum, Bijapur and Dharwad districts of Belgaum Revenue Division and Bidar Gulbarga and Raichur districts of Gulbarga Revenue Division. These six project districts had a population of 16.2 million in 1991 and accounted for 35.9 percent of the state population.

The objective of the project was the attainment of goals of population policy of India namely, to reduce fertility, and lower infant, child and maternal mortality. The goals were sought to be achieved by

1. generating demand for services,
2. augmenting staff and facilities,
3. improving professional and technical skills,
4. improving management, and
5. involving community, voluntary organisations, other government departments and local bodies in the family welfare programme.

The components of IPP-III were formulated on the basis of experience gained from IPP-I. The supplementary feeding programme for pregnant women in the last trimester, nursing mothers during the first six months of lactation and toddlers aged 6-

24 months which formed part of IPP-I was not included in IPP-III. On the other hand IEC and population education components were introduced for the first time in IPP-III to generate demand for family welfare services.

The total cost of IPP-III was Rs. 713.1 million and its break up by the four major components is presented below.

Table 8.2.1 Break up of Expenditure on IPP-III

Activity	Percent
Service delivery	83.0
IEC & population education	6.4
Research & evaluation	2.9
Project management	7.7

Under IPP-III, as many as 2,344 buildings of different types were constructed and 83 PHC's were repaired or provided with extensions. Safe drinking water was provided to 720 buildings and compound walls were constructed for 654 buildings. One hundred and fifty four-wheeled vehicles and 512 motor cycles were provided. Equipment and furniture worth Rs. 26 million was purchased and supplied to different hospitals. The managerial and professional skills of many medical, paramedical and non-medical personnel have been improved through well organised training programmes.

IPP-III had a construction wing, an implementation wing and an IEC wing. Population education activity was entrusted to State Council of Education Research and Training of the Department of Education, Government of Karnataka. The research and evaluation activities were assigned to the Population Centre in Bangalore.

IPP-III (Karnataka) also had a Project Governing Board (PGB) with the Chief Secretary as the Chairman and a Steering Committee with the Secretary Health as Chairman.

8.3. India Population Project-VIII

This project is being financed under assistance from IDA and was launched during the last quarter of 1993-94. The specific objectives of the project are to:

- a) improve maternal and child health, and
- b) reduce the fertility among the urban poor in Bangalore Urban Agglomeration.

The strategy to be adopted to achieve the objectives is based on:

- a) Involving the community in planning and implementation of primary health care services

- b) Improving the quality of family welfare and maternal and child care services provided by the city corporation.
- c) Strengthening of existing health and family welfare delivery services in the city.
- d) Expanding the coverage of urban poor by establishing new facilities.
- e) Providing selected family welfare and maternal and child care services at the door step of the urban poor.

The Project cost is estimated at Rs. 387.2 million.

8.4. India Population Project-IX

The Project was launched in June 1994. The specific objective of the project is to implement a programme sustainable at village level to reduce CBR, IMR and MMR and increase CPR as indicated below for the state of Karnataka.

Table 8.4.1 Targets for Vital Rates

	1990	1998
Infant Mortality	71	50
Maternal Mortality	6	2
Crude Birth Rate	28	20
Couple Protection Rate	47	60

The strategy to be adopted for achieving the objectives is to

1. Involve the community in promoting and delivery of family welfare services.
2. Strengthen delivery of services by providing
 - a). drugs, health kits and supplies to TBAs, Sub-centres and PHCs,
 - b). make ANMs at sub-centres mobile by providing loans for purchase of two wheelers,
 - c). buildings for sub-centres with provision of residential accommodation for ANMs, and
 - d). providing residential quarters for medical officers as an incentive for staying in rural area.
 - e) Involving NGOs in promoting and delivery of health and family welfare services
3. Improve the quality of services by providing training to personnel, official and non official at various levels including TBAs, community leaders and voluntary agencies.
4. Strengthen monitoring and evaluation by developing and installing MIES from district to state level.

While construction of buildings for sub-centres and residential quarters for medical officers is confined to selected thirteen districts (eight of which were not covered under IPP-I and IPP-III), all other activities such as training, IEC and MIES

are being carried out in all the districts of the state. The project cost is estimated at Rupees. 1220.9 Million.

Table 8.4.2 Project Base Cost by Activity

Activity	Amount Million Rs.	Percent of Total
Strengthening Delivery of Services	820.434	67.20
Improving Quality of Services	172.590	14.14
IEC	102.217	8.37
Project Management	49.695	4.07
Innovative Schemes	75.886	6.22
Total Project Cost	1220.922	100.00

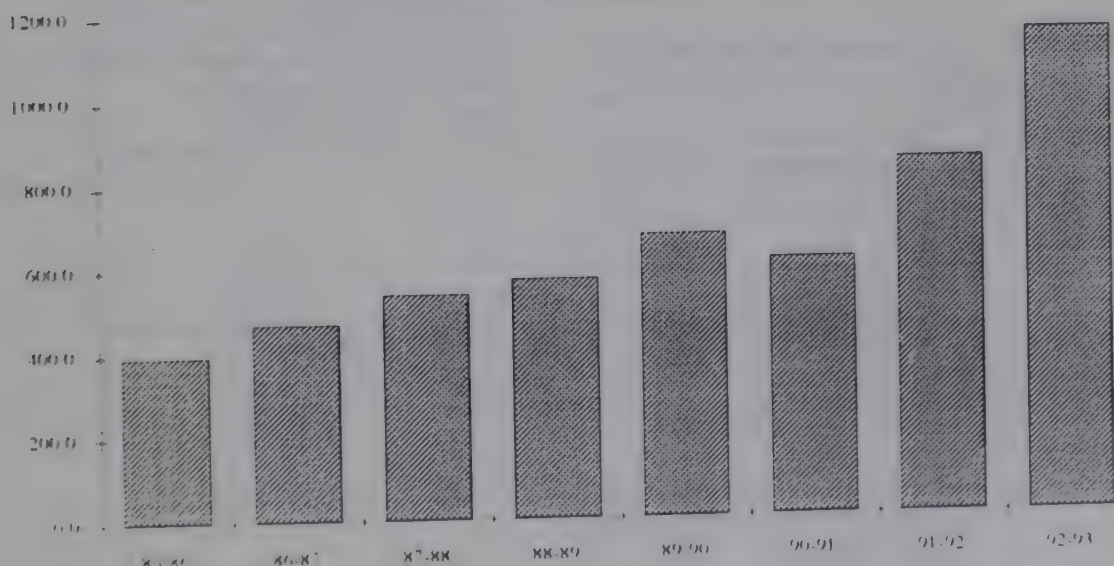
8.5. Other Measures to Improve Health Status

The Government of Karnataka has been allocating resources for activities such as safe drinking water, nutrition supplementation and housing

Water Supply:

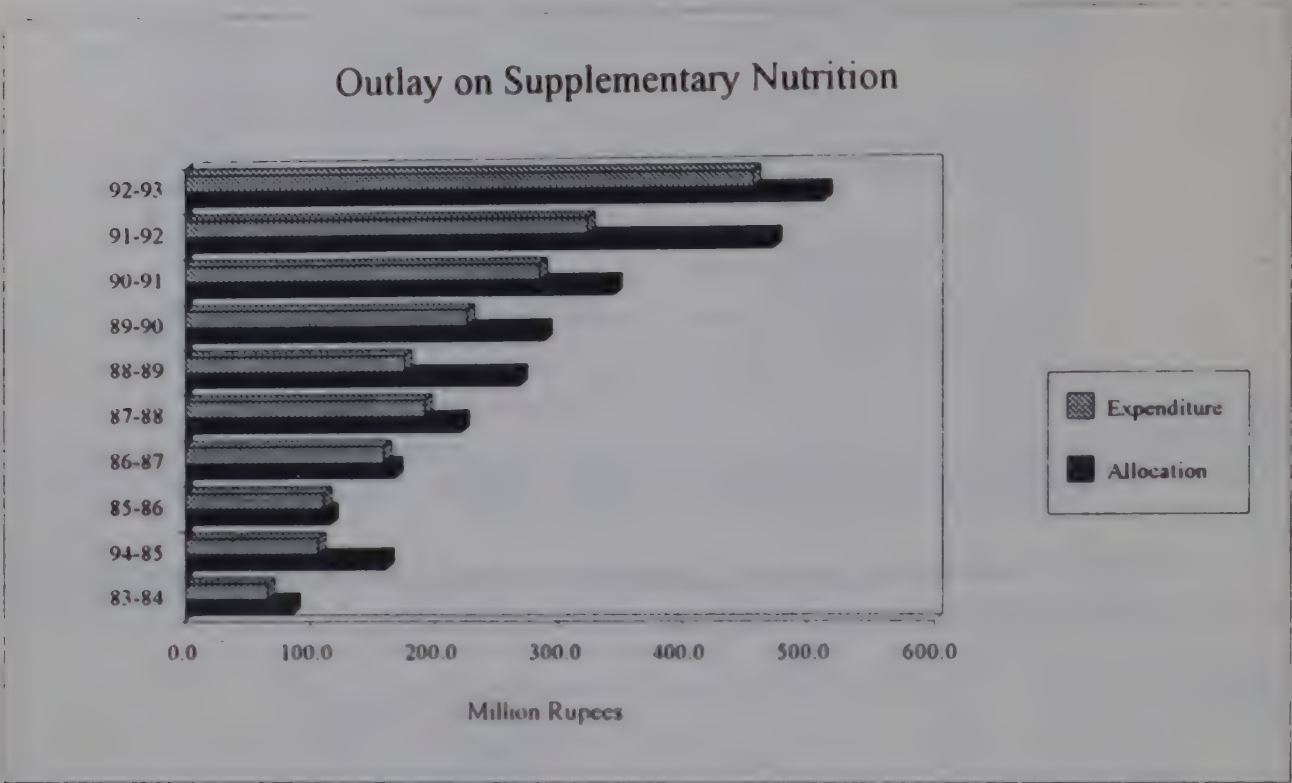
The outlay on providing safe drinking water has increased from Rs. 395 million in 1985-86 to Rs. 1165 million in 1992-93. As a consequence, 72 percent of all households in Karnataka have access to safe drinking water in 1991 as against 34 percent in 1981. Eighty one percent of urban households and 67 percent of rural households have access to safe drinking water.

Outlay on Water Supply
Million Rupees



Nutrition:

The State Government has been allocating increasing amounts each year for Supplementary Nutrition under the Integrated Child Development Scheme.



Housing:

The Government of Karnataka has been providing houses for the economically weaker sections under various schemes. As a result the housing conditions have shown improvement during the decade 1981-91.

Table 8.5.1 Housing Condition of Households in 1981 and 1991

	Percent of Households	
	1981	1991
Rural Areas		
Pucca House	19.2	30.5
Semi Pucca House	50.4	49.3
Kuchha House	30.4	20.2
Urban Areas		
Pucca House	54.6	69.4
Semi Pucca House	31.2	22.2
Kuchha House	14.2	8.4
Rural & Urban Combined		
Pucca House	29.3	42.6
Semi Pucca House	44.9	40.9
Kuchha House	25.8	16.6

8.6. Linkages with Other Projects in the State

Name of Project	Primary Health Care Objectives	Linkages with Karnataka Health Systems Development Project.
IPP VIII, IX and CSSM	Enhance service delivery for FW, and strengthen management at the district and block level, and slum areas of Bangalore, support Child Survival program; enhance Safe Motherhood Program	<p><u>Child Health</u> : Children identified by primary care services as suffering from severe stages of diarrhoea, acute respiratory infection and nutritional disorders will be referred to the hospitals for appropriate treatment.</p> <p><u>Maternal Health</u> : The CSSM program has identified by name the First Referral Units (FRUs) for the State, most of which are under Project management. Mothers identified as having life threatening complications of pregnancy and child birth will be referred to these FRUs for appropriate treatment.</p> <p><u>Technical supervision and training</u> : The Project will improve the quality of care at the primary level through : (a) visits to PHCs by specialists from the hospitals to conduct clinics for patients who need more skilled care; (b) training at hospitals for upgrading clinical and technical skills for PHC and sub-district staff; provide ongoing training for medical and paramedical staff from PHC and Sub-district hospitals.</p>
KfW (German) assisted Secondary Level Services Projects	Expansion and up-gradation of existing secondary level health care facilities in the four backward districts of Gulbarga Division.	The component will be complementary to the present Project and will contribute to reduce the regional imbalances, which is the main objective of the project.
National AIDS Control	<p>Involve States in programme development</p> <p>Monitor epidemics ; screen blood ; logistical support</p>	<p>AIDS Cell and Empowered Committee promote co-ordination between the AIDS Programme and the Project. The MIS capability and patient statistics gathered by the project are of vital use to the AIDS project.</p> <p>Surveillance sites or HIV testing facilities located in the Govt. hospitals to facilitate monitoring of the AIDS epidemic. HIV screening to be done within blood banks of the hospitals; the AIDS project provides the kits, training and procedure; Govt. hospitals provide infrastructure, staffing and support services. Project facilitates logistical support by providing equipment, medicines, medical supplies and management of waste..</p>

Name of Project	Primary Health Care Objectives	Linkages with AP District Health System Project.
National AIDS Control (continued)	Raise public awareness; develop clinical management skills in AIDS and STD control.	The IEC component of the AIDS project targets staff of the hospitals for disseminating information. Selected staff of the hospitals to be trained by the AIDS project will provide counselling and attend to the medical needs of AIDS patients
National Leprosy Eradication	Multi-drug therapy; disability care and prevention. Logistics and MIS	The health infrastructure is a channel of treatment and drug delivery. The staff and hardware provided by the Leprosy project will function within this infrastructure, providing physiotherapy facilities, operation theatres (OT) and lab facilities. The Project facilities provide storage and support services for the Leprosy project. MIS and statistical support are also provided.
Blindness Control Programme with Danida assistance	Expand service delivery and institutional development	The Blindness Control Programme through the District Blindness Control Societies is financing support services for cataract blindness in district hospitals. The Project will provide: support staff who will receive specialised training under the Blindness Programme, logistical support and other facilities. The referral system will complement and facilitate the referral of blind patients to district hospital for specialist care.

Chapter 9

Health Sector Development Policy Programme in Karnataka

The State Government has begun a serious exercise to assess the strengths and weaknesses of its Health care system. The major issues on which the State Government is engaging its attention, and the direction of its future Reform package has been spelt out in the Health Sector Development Policy matrix seen below.

Issue	Effect	Proposed Change or Action
1. Adequacy of the overall size of the health budget to meet public health goals	Public health expenditure is about 5% of the state budget and 1.48 % of GDP. These health expenditures are inadequate to provide essential primary health care together with a basic package of clinical/curative services.	Recognising the link between basic public health provision and poverty alleviation, the Government will not only maintain the share of health sector allocations within the overall budget as reflected in 1995-96 Budget, but will step up the allocations progressively.
2. Imbalances in public expenditure between different levels of the health sector	With increasing expenditure on tertiary level health care, there has been a relative decline in the investment in primary and secondary level facilities. This imbalance needs correction.	The State recognises the need for focusing attention on the primary and secondary levels of health care and also to step up allocations for the same levels. A major portion of the increased allocation will go to the primary and secondary levels.
3. Redressing Regional imbalance	The six districts of Gulbarga, Bidar, Bijapur, Raichur, Dharwad and Bellary show poor health indicators on account of uneven development in the health infrastructure and delivery of services	Through both project as well as non-project interventions, a policy of positive discrimination in favour of the under developed districts and the less developed regions within advanced districts (i.e. tribal areas) will be followed to reduce the existing imbalance. This differential policy is already under implementation. Additional resources are being provided out of State's own funds for filling critical gaps in primary health care.
4. Quality of and access to hospital services	Quality of medical services is inadequate; in addition, access to health care services is limited especially for populations in the least developed areas of the State, particularly women, scheduled castes and scheduled tribes.	Quality and access will be improved by: i) upgrading and expanding physical capacity; ii) upgrading clinical effectiveness and quality of services at Community, Taluka, and District hospitals; iii) improving the referral system; iv) adopting staffing and technical norms in line with the recommendations of the high level committee. In respect of Scheduled Caste and Scheduled Tribes access will be improved through a system of annual health check-ups.
4. Quality of and access to hospital services		Patients below poverty line who cannot afford high cost treatment for serious ailments such as oncologic and cardiac disorders will be assisted through a specially constituted society for providing medical care

Issue	Effect	Proposed Change or Action
5. Strategic Planning	Inadequate strategic planning capacity in the health sector has resulted in sub-optimal use of resources. Decisions on public health spending priorities presently do not take into full consideration the size and scope of services provided by private-commercial and voluntary sectors; the health manpower supply situation; and the predicted future epidemiological profile in Karnataka.	The capacity for strategic planning will be enhanced through establishment of a Planning Cell directly reporting to the Secretary Health and Family Welfare. This will, either independently or through sponsored specific research projects: study the role of the private sector; review the suitability of present regulations; Study evolving epidemiological profile in Karnataka; monitor the burden of disease and recommend cost-effective means for achieving the best use of limited resources; and undertake periodic review of the health manpower supply situation and training needs in the state. A study of the scope and prospects of enlisting the private sector support for promotion of health care at primary and secondary levels will be undertaken.
6. Work force	<p>Improvement of services at hospitals is significantly restricted by workhorse problems, both in terms of quality and quantity. The number of staff sanctioned at hospitals does not fit current needs; there are many vacancies due to poor and cumbersome recruitment procedures, and unimaginative personnel policies.</p> <p>The distribution of medical specialists is not commensurate with the need e.g.: a general surgeon in place of an Obstetrician & Gynaecologist.</p>	<p>No ban on recruitment will be imposed with regard to recruiting staff. In a short period the problem of mismatching in medical staff will be solved; the practice of deputing staff to non essential assignments will be put to an end; doctors recruited on contract where direct recruitment process is slow and doctors will be asked to serve a mandatory period of six years in rural areas before being considered for posting at more preferred places.</p> <p>Since there is a large number of lady Doctors' vacancies, participation by private lady Doctors in Government facilities will be encouraged.</p>
7. The role of the private sector and voluntary organisations	The health services development strategy of the Government has not taken sufficient account of the scope and coverage of non-Governmental providers and the role of this sector in delivering quality health care.	Legislation will be introduced to regulate all medical institutions. The role of the private sector would be continuously monitored, the quality of services provided by private care practitioners would be assessed and regulations relating to improvements in service quality would be evaluated.
7. The role of the private sector and voluntary organisations		Referrals between private primary care and the public sector secondary level diagnosis, treatment and care would be encouraged through District Health Committees.

Issue	Effect	Proposed Change or Action
8. Cost sharing and service improvement	Cost sharing has not been properly implemented resulting in low levels of funding for supplies, operations and maintenance.	<p>The Government will set up a working group to examine the issue of cost sharing, last revised in 1988, while protecting the poorest sections of society. The guiding principle of cost sharing would be to partly cover non salary recurrent costs.</p> <p>In addition, adequate administrative and organisational mechanisms for implementing schemes for cost sharing would be put in place. A mechanism to give back a major portion of revenues raised by the institution will be introduced.</p>
9. Prevention and control of major communicable diseases.	The existing surveillance system is very weak especially at Secondary level and in urban areas.	The project aims to establish an effective surveillance system which will contribute to reducing morbidity and mortality rates due to major communicable diseases.
10. Contracting services	Contracting services are under-utilised.	The Department will monitor cost-effectiveness and quality of existing contracted services. Furthermore the Government will review as appropriate new proposals for contracting-out health services especially support services, such as laundry, cleaning services, manufacturing I.V fluids etc.
11. Safeguarding the operations and maintenance of the health budget.	The existing secondary hospitals face operational deficiencies and function poorly due to lack of non-salary recurrent funds.	The State will make adequate provision in the health budget for drugs and other medical supplies, and for maintenance of equipment and buildings.
12 Consolidation-Vs-Expansion of Institutions	The State has been rapidly expanding the number sub-centres, PHCs, CHCs, Taluka level, and sub-district hospitals without focusing on improving the physical facilities in the existing institutions.	Further expansion of beds, and hospital institutions will be strictly need-based, and will be undertaken only after ensuring the existing facilities are properly maintained and utilised.
13. Poverty alleviation	About 40 % of households are below the poverty line in Karnataka. In this group, health indicators such as mortality and morbidity rates, are especially adverse.	The investment made in this project specially through special programmes for the disadvantaged section viz., SC/ST and women, will aim at augmenting the productivity/earning potential through better health status.

Chapter 10

Strengthening Institutions and their Implementation Capacity

10.1. Existing Organisational Deficiencies

Chapter 3 describes the Public Health Care System as it exists at present. At the State and District levels there are presently many organisational deficiencies, which need to be corrected. These have been grouped as below:

10.1.1. Excessive Centralisation of Powers at the Level of Director

The existing centralisation results in delays, and consequential inefficiencies. The Director is overburdened with files and a lot of routine administrative duties which could easily be dealt with at much lower levels. As the Director is fully occupied in matters relating to administration, he has little or no time for monitoring important Programmes, making field visits and providing quality leadership to his team. Though a large army of senior officers exist at the Directorate they are not made accountable and responsible for their sphere of work. This also tends to rob them of some of their initiative which they might have otherwise displayed. There has been no systematic effort to delegate powers to the Divisional Joint Directors. Similarly, Superintendents of sub-district hospitals have little authority even in the routine day-to-day management of the hospitals. For example, they have virtually no powers to attend to petty repairs to the building or attend to minor repairs of hospital equipment.

10.1.2. Limited Strategic Planning and Research Capability:

The Directorate has little expertise in planning for change, reviewing the suitability of existing regulations, monitoring the changing epidemiological profile of the State, monitoring the burden of disease, and recommending cost-effective means to achieve the best use of limited resources. It also has no institutional mechanism to carry out studies on a continuing basis, or interpret and analyse trends, and initiate Policy initiatives for reform and change.

10.1.3. Management Information System

The existing MIS is restricted to providing monthly and annual reports on MCH and FW and other National Programmes. Some of the information essential for strategic planning is being compiled manually by the Planning and HIS wing. Up to date information on important aspects such as status of civil works, availability of equipment, personnel, analysis of expenditure, is not readily available. Plans are under way to introduce MIS in a limited way under IPP-IX. The offices of the DHO are

being computerised to process the monthly returns from PHCs and CHCs under the jurisdiction of the DHO. MIS wing is being set-up under the Additional Director (Project) for monitoring implementation of IPP-IX project activities

There is an urgent need to integrate the MIS activity and expand its functions not only to monitor various activities but also to aid in preparation of medium and long term plans

10.1.4. Weak Surveillance Mechanism:

The recent resurgence of several communicable diseases has emphasised the need to strengthen the institutional structure for surveillance and management of all major communicable diseases. The existing system is especially weak at the secondary level, particularly in urban areas, and also requires strengthening at the State level.

10.1.5. Building and Equipment Maintenance Systems:

The equipment management structure is very weak, with only one junior health equipment officer for the entire State who is expected to deal with both procurement and maintenance of equipment for all hospitals in the State, including those in the Teaching institutions. In-house capability for effecting even minor repairs of equipment is almost non-existent. Similarly, the capacity of the system to construct and maintain physical facilities, such as hospital buildings, residential quarters is limited on account of the fact that all building design, construction and maintenance works are managed by the PWD, who also deal with the buildings of other Departments. As a result there is no expertise to design construct and maintain hospital buildings, activities which requires a great deal of specialisation. The situation is made worse due to two other factors:

- PWD operates the Construction Budget; thus often enough, the Department's requirements do not match the priorities of the Agency constructing the buildings;
- No standards exist on the space requirements for each type of facility; one therefore has the situation of inefficient utilisation of space, on the one hand, and lack of minimum standards, in respect of some facilities, on the other.

10.1.6. Inadequacies at the District level:

At the District level there are two major gaps. The first, relates to the District Surgeon. He is expected to provide technical leadership for the functioning of the health system at the first referral level. In actual fact, however, he remains confined to the District hospital and plays the limited role of a hospital superintendent. Secondly, there is no nodal officer at the Taluka level to provide the necessary linkage between the primary and secondary levels and oversee the implementation of the National and State health Programmes at the Taluka level. There is also no proper demarcation of

the spheres of activities to be dealt with by the local elected bodies, such as the Zilla Panchayat, Taluka Panchayat, and the Gram Panchayats, on the one hand, and responsibilities to be shouldered by the Directorate, on the other.

10.2. Improving Institutional Framework for Policy Development

10.2.1. Strategic Planning Cell

A Strategic Planning Cell will be set-up in the Directorate headed by an Additional Director (Planning) to address strategic planning issues in the health sector and provide management with Policy options. It would be directly reporting to the Secretary, Health and Family Welfare and undertake operational and policy related research projects, either independently or through local consultants, and organise workshops and seminars.

The head of the Strategic Planning Cell would be an Economist and he will be supported by three Joint Directors. One of the Joint Directors will have medical background, another with experience in Social Science Research and the third with specialisation on Information Technology. The Planning and HIS wing will become part of the Strategic Planning Cell. The Joint Director with Information Technology background will plan comprehensive information system for the Directorate and oversee its implementation. He will also provide technical guidance to the Dy. Directors responsible for MIS under the administrative control of the Additional Directors FW & MCH, Additional Director (IPP-IX) and Additional Director (KHS)

10.3. Strengthening Management and Implementation Capacity

To strengthen institutional capability and to support Project implementation the following structural improvements and changes are proposed:

10.3.1. Project Management:

The capacity of the Directorate to plan and implement a major Health Systems Project, which is ambitious in size and scope, is limited and requires to be strengthened, both quantitatively and qualitatively. The experience of past Projects as well as the IPP -IX Project, currently under implementation, has shown that there is need to have Government support directly at the Project Management level, to ensure that delays in decision making at the Government level do not impede the progress of implementation of the Project at any stage. It is therefore proposed to create a post of Additional Secretary and post a senior officer from IAS cadre to provide the necessary Government back up to the Project. Several components of the Project such as Policy Reforms, Delegation of Powers, rationalisation of appointments and the placements of Doctors according to their specialisation, placement of Project Staff, creation of posts according to the accepted Norms, etc require Government interventions at a high

level. Such matters as well as overall Project co-ordination will be dealt with by this officer, who will sit in the Secretariat, and report directly to the Secretary.

The Government has created the post of Additional Director (Projects), and he is presently responsible for the implementation of the IPP-IX Project, though a full time Joint Director is looking after the day-to-day implementation of some of the components of IPP-IX. As IPP-IX requires full time attention of the Additional Director, it is proposed to create another post of Additional Director who will be in overall charge of Karnataka Health Systems Development Project. For day-to-day implementation of the Project it is proposed to create a new post of Joint Director (Hospitals). The post of will be filled up by a Senior Medical Officer who has functioned as a Hospital Superintendent and has considerable field experience of working in Hospitals at all the levels.

Joint Director (Hospitals) will be supported by Four Deputy Directors, viz., Deputy Director (Training & Referral), Deputy Director (Hospitals North), Deputy Director (Hospitals South) and Deputy Director MIS. Deputy Director (Training & Referral) will deal with training, referral system, quality assurance, and IEC (with technical support from the State IEC wing). Deputy Directors (Hospitals North & South) will assist the Joint Director (Hospitals) in the remaining components of the Project and assist in co-ordination with the Civil Engineering, Equipment, Administration and the Monitoring wings. They will maintain the Project profiles in respect of all the 248 institutions being taken up under the Project as well as the Project funded by KfW and prepare the Action Plans for each institution, including the time-scheduling etc. Deputy Director (MIS) will be responsible for continuous monitoring of progress for each component of the Project.

The other new posts proposed are Chief Accounts Officer, and Administrative Officer, along with necessary supporting staff.

10.3.2. Strengthening the Management and Implementation at Operating Level

10.3.2.1. Delegation and Decentralisation of Powers:

A Working Group was set up to review the existing organisational structure and suggest the delegation and decentralisation of both administrative and financial powers that need to be made to make the Health Care System more responsive, and to reduce the excessive concentration of power at the level of the Director. The Working Group has submitted detailed recommendations on the delegation of administrative and financial powers at the following levels:

- Divisional Joint Directors of the four Divisions;
- Chief Administrative Officer (mostly in respect of establishment matters relating to subordinate staff);
- Other Joint Directors;
- District Health and Family Welfare Officers in the districts;
- District Surgeons/Superintendents of various hospitals; and,
- Deputy Directors.

The recommendations of the Working Group may be seen at Annexure -1

10.3.2.2. District Level Strengthening:

It is necessary to have one Medical Officer to supervise the work of implementation of all Health & Family Welfare Programmes, especially at the primary level. Even though there are Programmes Officers at the district level for Programmes such as Leprosy Control, TB Control, Blindness control, Malaria Eradication, Family Welfare and MCH other essential Health care delivery services, they are presently not being supervised effectively as the Programme officers have no administrative control over the field staff. The District Health Officer is also not able to supervise and monitor these Programmes due to the heavy work load involved. It is therefore proposed that an officer should supervise all the health and family welfare programmes at the Taluka level. He would represent the Taluka in all meetings at the District level. This will ensure better supervision over the working of the staff and hospitals in the rural areas, as also relieve the District Health Officer of a lot of routine administrative work. He will also provide the institutional linkage between the primary and the first referral levels. The work load may well justify the creation of a new and exclusive post at the Taluka level. In the first instance, however, it is proposed that the senior most Medical Officer working at the Taluka level should also be additionally designated as the Taluka Medical Officer. In respect of the 48 sub-divisional ADHOs, this will mean that they themselves will be designated as Taluka Medical Officers. At other places, the CHC/Taluka Hospital senior Doctor will function as the Taluka Medical Officer. The main advantage of this arrangement will be that one can experiment with this new structure without posing any additional financial burden on the State exchequer. If the arrangement proves worthwhile, the feasibility of having full-time officers can be examined. To give necessary support to the Taluka Medical Officer, and ensure his effectiveness, it will, however, be necessary to provide him one jeep to ensure his mobility. Some minimal clerical staff, again through re-deployment will be provided to him.

The District Health Officer and the District Surgeon are the two district level officers in the health set up. Currently, while the DHO is over burdened with the implementation of all State and National Health & Family welfare programmes, the District Surgeon's Role has remained confined to managing the District Hospital. This structure has resulted in keeping the District Surgeon away from the mainstream of the Health Care system at the district level. It has been decided to create a new post of Resident Medical Officer for each District Hospital. The RMO will look after the day to day management of the Hospital, thereby, enabling the District Surgeon to take on

an expanded set of responsibilities. In this changed role, the District Surgeon will be responsible for:

- effective functioning of the referral system;
- planning and implementing the clinical skills training at the district level;
- supervising all the hospitals outside the purview of the Zilla Panchayat, viz.: above 50 beds; and,
- managing and supervising the equipment maintenance facility at the district level.

Each of the 176 Taluka Health Officers and twenty District Surgeons will be provided with a vehicle with driver to enable them to frequently visit the hospitals in their jurisdiction

10.3.3. Strengthening the Design and Engineering Wings

It is proposed to establish an Engineering Wing in the Health Department exclusively dedicated to designing, constructing and maintaining all the facilities being taken up including the civil works contemplated under the Project. The Engineering Wing will be headed by a Chief Engineer, taken on deputation from the PWD and reporting to the Secretary, Health & Family Welfare. He will be supported by two Superintending Engineers, one based at Bangalore, and the other at Dharwad. The Superintending Engineers will have the normal complement of Executive Engineers, Assistant Executive Engineers, Assistant Engineers, and Junior Engineers, at the various Districts. They would be assisted by surveyors, draftsmen, etc. The Superintending Engineer (IPP-IX) and his staff will also be reporting to the Chief Engineer.

The Design Wing of the Project will be headed by a Dy. Chief Architect, who will report to the Chief Engineer for administrative purposes and to the Chief Architect of the State on all technical issues. A high level Design Group has finalised space and design norms for each type of facility and each type of hospital based on the Report on accommodation prepared at the Workshop held on Feb. 28 - March 1, 1995. This Group also includes senior officers of the Project, and will be responsible for short-listing a panel of Architectural firms, for designing the renovation and expansion of the various hospitals. The chief Architect, adopting the World Bank guidelines, has constituted a Panel of Private Architects for preparation of designs and drawings.

The Dy. Chief Architect will, in consultation with the Chief Engineer, entrust the task of preparing designs, drawings, specifications, bill of quantities and bid documents to architectural firms on the Panel. The Chief Engineer will float tenders after obtaining clearance of the bid documents by the World Bank and the Steering Committee. He will evaluate the tenders and submit the results to the Steering Committee as well as the World Bank for award of contract for civil works. Supervision of the quantities and quality will be entrusted to the architectural firm which prepared the designs and drawings and tender documents. The staff under the Chief Engineer will also cross check the quality and quantities during the course of

construction. The Chief Engineer will pass the bills of the construction for payment after due certification by the architectural firm and approved by the concerned Superintending Engineer.

10.3.4. Equipment Management

The existing Health Equipment Repair and Maintenance Unit in the Directorate is inadequate when compared to the vast range of equipment spread all over the State. There are only nine persons under the Health Equipment Officer. There is only one X-Ray technician, two semiskilled artisans and one dark room assistant. The remaining five are administrative and Group D staff.

It is proposed to revamp this unit by inducting qualified Mechanical/Biomedical/Electrical/Electronics engineers who have adequate familiarity with hospital equipment systems.

The objectives of the revamped unit will be to:

1. provide expert technical services and advice on the purchase of equipment, spares, service contracts etc.;
2. procure, install, commission, maintain and service biomedical and other hospital equipment for diagnosis, monitoring, analysis and therapy etc.;
3. maintain and service heating, ventilation, air-conditioning (HVAC) systems, power systems etc.;
4. carry out minor maintenance works related to buildings, electrical & sanitary fixtures;
5. organise training programmes for biomedical technicians and users;
6. modify existing equipment, if required, by the doctors; and
7. maintain records for administration and management purposes.

The technical services of the unit would be effectively used in

- a. Studying the equipment needs,;
- b. Selection of equipment based on technical evaluation;
- c. Preparation of sites and basic utilities;
- d. Installation, commissioning and acceptance;
- e. Preventive maintenance, wherever required; and,
- f. Training of users.

Professional management of the system will ensure that there is no procurement of obsolete systems which may prove to be ineffective and uneconomical, involving huge operational costs. Other shortcomings such as inadequate radiation protection, uneven load distribution, noise and vibration level of equipment, lack of temperature and humidity controlled environment, electrical leakage, explosion hazards due to gases etc. will also be avoided.

It is also proposed that proper maintenance of reporting and records system will be designed and installed. Records would contain the status of the equipment,

inspections undertaken, repair works carried out and costs incurred. Safety inspection tours will be regularly undertaken.

The unit will be under the Additional Director (Health Systems) and headed by a Joint Director who will have functional autonomy and specifically allocated budget for procurement and maintenance. A Committee, with experts drawn from hospitals, industry and academic institutes will be formed to review from time to time the facilities, equipment procurement process, quality and efficiency of the unit.

The unit will be responsible for maintaining the equipment in all the Government hospitals in the State. It will be organised as a three tier system with Head Quarters and Technical Support Facilities at Bangalore; Hospital Engineering Units and Mobile Engineering Units at each district hospital. The Mobile Engineering Unit will be under the control of the District Hospital Engineering Unit and will be responsible for maintaining the equipment in all the hospitals in the district. The District Hospital Unit will report to the District Surgeon for administrative purposes. For planning and technical guidance, the District Hospital Engineering Unit will be supervised by the Dy. Director (Equipment).

The Dy. Director (Training) will organise training programmes for medical, paramedical and technical staff. The training will cover not only use of equipment but also simple maintenance procedures such as replacement of fuses, replacement of gaskets, topping up with oil in hydraulic equipment etc. One Dy. Director (Equipment) will look after the equipment needs of hospitals under the jurisdiction of the Director of Medical Education and the other Dy. Director (Equipment) will look after the equipment needs of hospitals under the Director, Health & FW Services.

The Dy. Director (Transport) will be responsible for planning for procurement, of vehicles and select private garages in each Taluka to repair all the vehicles of the department in that Taluka.

10.3.5. Management Training for Hospital Managers and Administrators

Under IPP-IX, a State Institute of Health and Family Welfare is being set up. This will design training courses for all categories of staff, develop training modules and conduct training courses for the faculty of all training centres currently run or proposed to be run by the Department of Health and Family welfare. Conducting management training Programmes for superintendents of hospitals and senior doctors is one of the important activities planned for the State Institute.

It is proposed to have in this Institute a Research Wing. The possibility of merging the Population Centre with this Research Wing of the Institute will also be examined. At a later stage, when a full-fledged Research Wing is established at the Institute, the advisability of merging the Strategic Planning Cell with this Institute can also be examined.

10.3.6. Management Information System

The objectives of the MIS for Health Care System are:

1. To provide access to basic data generated at the primary sources like PHC, Taluka, and District level hospitals;
2. To gather, collate and analyse the vast amount of data and provide an insight into health indicators which in turn will aid in implementation of a system that is cost effective, efficient and is generally expected to contribute to an improved standard of health care in Karnataka; and
3. To provide information on different programmes and help in resource allocation and monitoring.

Some of the aspects which are important for planning health care services and monitoring performance are:

- Birth Rates according to Sex, Region and Family background.
- Death Rates according to Age, Sex, Region, Family background and cause.
- Morbidity Data according to Disease, Sex, Age and Region.
- Surveillance system for communicative diseases.
- Allocation of Personnel, Equipment, Facilities at different hospitals *vis-à-vis* norms.
- Existing plans and status for each unit.
- Expenditure tracking for each unit.
- Monitoring training of different categories of personnel
- Equipment availability at each unit.
- Drugs and supplies tracking for each unit.
- Building maintenance of each unit.
- QA program monitoring.
- Monitoring of the Referral System.

MIS is expected to play a major role in the proposed reorganisation and improvement of the complete health care system.

The proposed MIS set up will be complementary to the one that is operational under Additional Director (MCH & FW) and that being implemented under IPP-IX. and attempt to integrate them into a comprehensive system.

The MIS under Additional Director (MCH & FW) is utilised to generate reports on monthly performance of MCH and FP activities. Data on other national programmes such as National Leprosy Eradication is also processed.

As part of IPP-IX computers are being installed in the Project Office, Engineering, Training and IEC wings in the Directorate and the offices of the DHOs. The computer systems at the Directorate will be used for monitoring project activities and producing reports.

It is also planned to create databases on the following aspects of MCH, FW and other National programmes.

1. Demographic features of the territories covered by CHCs, PHCs, and SCs
2. Stock on hand and consumption of drugs and supplies for MCH & FW and other National Programmes,
3. Performance of components of MCH & FW and other National Programmes,
4. Morbidity for selected diseases.
5. Facilities at health centres — Building, equipment, and staff,
6. Budget and expenditure by head of account at the state level and disaggregated up to sub-centre level,
7. Personnel information — date of joining, date of birth, academic qualification, details of pre and in-service training provided, service record and current place of posting,

Items 1 to 4 are part of the HMIS system developed by National Informatic Centre and Central Bureau of Health Intelligence and Statistics.

It is proposed to extend MIS activity to encompass secondary and tertiary level hospitals and enlarge the coverage of morbidity data from the primary health care system. It is proposed to introduce Hospital Management System in all Community Health Centres, Taluka and District Hospitals. The Hospital Management System will have the following components:

- Patient Management
 - Patient Registration
 - Admission
 - Treatment/Investigation
 - Discharge
- Ward/Bed/Resource allocation
- Inventory Management of
 - Drugs
 - Laboratory materials
 - OT supplies
 - Other Hospital Materials
- Inventory of Assets
- Patient Billing
- Hospital Accounting
- Generation of Certificates or mandatory Reports
- Staff Administration
- Medical Records

It is proposed to engage consultants experienced in implementing Hospital Management Information Systems to adapt, implement and train personnel in the hospitals in maintaining the system. The Joint Director (MIS) in the Strategic Planning Cell will co-ordinate this activity.

The hardware configuration required for hospitals will vary, given the size and utilisation of services. Preliminary assessment of configuration required are:

CHCs and Taluka hospitals with 50 beds or less:	One Type A computer with P80 Printer.
Taluka hospital 100-150 beds	Two Type B Computers (Networked through Windows for Work group peer-to-peer LAN)
200-300 bed hospitals:	A LAN with one Server, six B type computers and three P80, one P132, and one Print Server
300 - 500 bed hospital	A LAN with one Server, eight B type computers, and four P80, one P132, and one Print Server
District Surgeon	One B type computer and one P132 printer
MIS HQ	A LAN with one Server, 5 B type computers, one C type computer, two Print Servers, one PL, and two PDJ printers

Computer Type and HW Configuration

Type A	Type B	Type C	Server
32 bit CPU 50 MHz	32 BIT CPU 50 MHz	32 BIT CPU 50 MHz	32 BIT CPU 50 MHz
16 MB RAM	16 MB RAM	16 MB RAM	32 MB RAM
300 MB HDD	500 MB HDD	1.2 GB HDD	1.2 GB HDD
1.44 MB FDD	1.44 MB FDD	1.44 MB FDD	1.44 MB FDD
SVGA Monitor	SVGA Monitor	SVGA Monitor	SVGA Monitor
Key Board	16 Bit Ethnt Card	16 Bit Ethnt Card	16 Bit Ethnt Card
Mouse	Key Board	Key Board	Key Board
	Mouse	Mouse	Mouse

Printer Types:

P80:	80 Column 24 Pin
P132:	132 Column 24 Pin
PS:	Print server (PC 386 DX 40 270 MB HDD, 1 FDD)
PDJ:	HP DeskJet
PL:	HP Laser Printer

10.4. Strengthening Capacity for Management of Communicable Diseases:

The Additional Director Communicable Diseases, will also discharge the responsibility as the State Surveillance Officer, and head the revamped and strengthened Surveillance System being established in the State. District Epidemiological Units will also be set up to support the surveillance system.

Epidemiological surveillance is the continuous and systematic collection, analysis, and interpretation of health data in the process of describing and monitoring a health event. This information is used for planning, implementing, and evaluating public health interventions and programmes. Surveillance data is used both to determine the need for public health action and to assess its effectiveness.

The Project proposes to establish a comprehensive and effective surveillance system, the main features of which will be as follows:

- (A) Simplicity: The simplicity of a surveillance system refers both to its structure and ease of operation. The surveillance system should be as simple as possible while still meeting its objectives.
- (B) Flexibility: The surveillance system should be flexible so that it can adapt to changing information needs or operating conditions with little additional cost in time, personnel, or allocated funds. The system should be able to accommodate, for example, new diseases and health conditions, changes in case definitions, and variations in reporting sources.
- (C) Acceptability: Acceptability reflects the willingness of individuals and organisations to participate in the surveillance system.
- (D) Sensitivity: The sensitivity of a surveillance system is considered at two levels, viz., the level of case reporting, and, second, the and the ability to detect epidemics.
- (E) Predictive value positive: Predictive value positive is the proportion of persons identified as having cases who actually do have the condition under surveillance. A high rate of erroneous case reports may trigger an inappropriate outbreak investigation.
- (F) Representative character: A surveillance system that is representative accurately describes a) the occurrence of a health event over time and b) its distribution in the population by place and person.
- (G) Timeliness: Timeliness reflects the speed or delay between steps in a surveillance system. The crucial aspect of timeliness is the amount of time between the onset of an adverse health event and the report of the event to the Directorate which is responsible for instituting control and prevention measures.

10.4.1. Existing Situation

A Working Group was set to a) make a rapid assessment of the existing surveillance system. in terms of the above attributes. and. b) suggest the formulation of an effective surveillance system. Faculty representatives from private teaching institutions also took part in these deliberations.

The major communicable diseases prevalent in the State are Japanese Encephalitis, Kyasanur Forest Disease, Infective Hepatitis, Polio Myelitis, Cholera, Gastro-enteritis, Plague, Typhoid, Tuberculosis, Malaria, and Filaria. The Epidemiological Data in respect of the 7 major communicable diseases in the State is given in Table 10.4.1.1 below.

Table 10.4.1.1 Incidence of Communicable Diseases in Karnataka

Disease	1991		1992		1993		1994	
	Attack	Death	Attack	Death	Attack	Death	Attack	Death
1. J.E	305	119	58	15	287	67	126	47
2. K.F.D	1183	5	940	15	301	1	110	-
3. Cholera	747	-	452	14	424	13	304	10
4. Gastro-enteritis	17454	691	14054	563	36206	855	15932	326
5. Plague	-	-	-	-	-	-	51	-
6. Tuberculosis	N A	N A	69380	684	67040	645	76541	837
7. Malaria	44565	8	67291	-	196466	-	266183	3

A basic surveillance system does exist at the primary level. The reporting system is simple. However, the inadequacies recently became evident when following the outbreak of Plague, in Gujarat and Maharashtra, pressing demands were made on the system. There is virtually no surveillance mechanism at the secondary level. There is similarly a major gap in the system in respect of the urban areas. The major causes for the high prevalence of communicable diseases are the following:

1. The recent resurgence of Malaria, in a virulent form is, perhaps, due to changes in the ecosystem, industrialisation, urbanisation, etc. leading to migration from endemic to non-endemic areas. Similar factors account partly for the emergence of stray cases of cholera, plague, etc., recently noticed in the State.
2. A major factor is the current lack of facilities to conduct proper and correct epidemiological investigations in time, and a mechanism which is sensitive, acceptable, and flexible enough to suit different programmes and different requirements.
3. Lack of linkages of the surveillance system with the primary and secondary levels.
4. Absence of systematic compilation, analysis, and interpretation of morbidity and mortality rates at the District hospitals due to non-availability of competent qualified personnel. The absence of an epidemiologist was specially emphasised by the Group.
5. There is no institutional arrangement at the District and State levels to conduct field studies based on primary level and secondary level data, test the efficacy of the reporting system on a continuing basis, and provide early warning signals of the impending danger of outbreak of epidemics and also suggest the interventions required to be instituted.

The recommendations made by the Group, were discussed by a high-level Group. The recommendations, as modified and accepted by the high-level Group, which are proposed for implementation in the Project, are spelt out below.

10.4.2. Taluka Level Strengthening:

The Group felt that though there was adequate manpower at the primary level, it was not being properly integrated into the State surveillance system. It was felt that there was need to give responsibility of monitoring the working of the system at the primary level to the proposed Taluka Medical Officer. In view of the importance of this item of work, it was decided that one person belonging to the clerical establishment in the Taluka level hospital should exclusively collate, monitor and report surveillance data, on a full-time basis. This identified official would be provided with special training at the District level on the surveillance system, and also be given special orientation at the National Institute of Communicable Diseases (NICD).

The Taluka Medical Officer would also provide orientation to other grass-root functionaries, such as Anganwadi workers, school teachers, Gram Panchayat Members, etc., who would become "informers" under the system.

10.4.3. Establishment of District Surveillance Unit:

Currently there are District Health Laboratories in all districts excepting Bangalore and Bangalore Rural. Each Laboratory is headed by a Medical officer of Health, four Senior Laboratory Technicians, four Laboratory Attenders and two Group D staff. The District Laboratory is supposed to provide laboratory analysis services at the district level. However, in actual fact, very few samples are sent to or analysed by the Laboratory. To better utilise the existing facilities, it is proposed to upgrade and redesignate the District Laboratory as the District Surveillance Unit. The Medical Officer of Health who is in-charge of the District Laboratory will head the District Surveillance Unit. These Medical Officers will be sent for an orientation programme on Epidemiology for three months. They would also be given technical guidance by the Bangalore unit of the National Institute of Communicable Diseases (NICD). Each unit will have the following additional staff.

By fresh recruitment:

1. Micro-biologist (Group B, with M.Sc. qualification)
2. Asst. Entomologist
3. Sr. Health Assistant
4. Driver

By redeployment

5. -Asth. Statistical officer
6. Typist-cum-clerk
7. Sr. Health Assistant
8. Group D Category (Two)

The District unit will perform the following functions:

- Act as the nodal surveillance unit at the district level and provide the missing link between the primary and secondary level sub-systems

- Provide early warning of outbreak of epidemics of all the major communicable diseases through continuous monitoring of morbidity and mortality trends in the district.
- Monitor and send qualitative assessments periodically to the State level as also feed-back to the primary level.
- Co-ordinate with other related Departments and local bodies such as Zilla Panchayat, PWD, Fisheries, Irrigation, Agriculture, Rural Development, Indian Medical Association, Programme Officers, Voluntary Organisations, etc.

The Group has recommended that the earlier 120 posts existing in the Plague surveillance Unit should be revived, and should be suitably re-deployed, to various endemic areas. Similarly, the cholera units at the Divisional level should be merged with the District Surveillance Units.

10.4.4. Strengthening of District Laboratories

The Group was of the view that the elaborate structure at the district level would be in a position to effectively discharge its responsibilities, only if the District Laboratories are properly equipped (Annexure 8). This will mean repairs to buildings, replacement of equipment and making adequate provision for consumable items.

10.4.5. State Level Strengthening:

At the State Level a Communicable Diseases Wing headed by an Additional Director reporting to the Director Health and Family Welfare Services will be set-up. The Joint Directors for Malaria & Filariasis, Leprosy and TB will be reporting to the Additional Director Communicable Diseases.

There is at present a communicable diseases intelligence unit headed by a Deputy Director working at Mandya which is grossly under-utilised. He has Under him the following supporting staff.

1. Assistant Malaria Officer
2. Epidemiologist
3. Statistical Officer
4. Senior Entomologist
5. Asstt. Entomologist
6. Entomological Assistants (2 posts)
7. Bacteriologist
8. First Division Assistant
9. Second Division Assistant
10. Typist
11. Senior Lab. Technician
12. Junior Lab Technicians (10 posts)
13. Driver

14. Insect Collectors (6 posts)

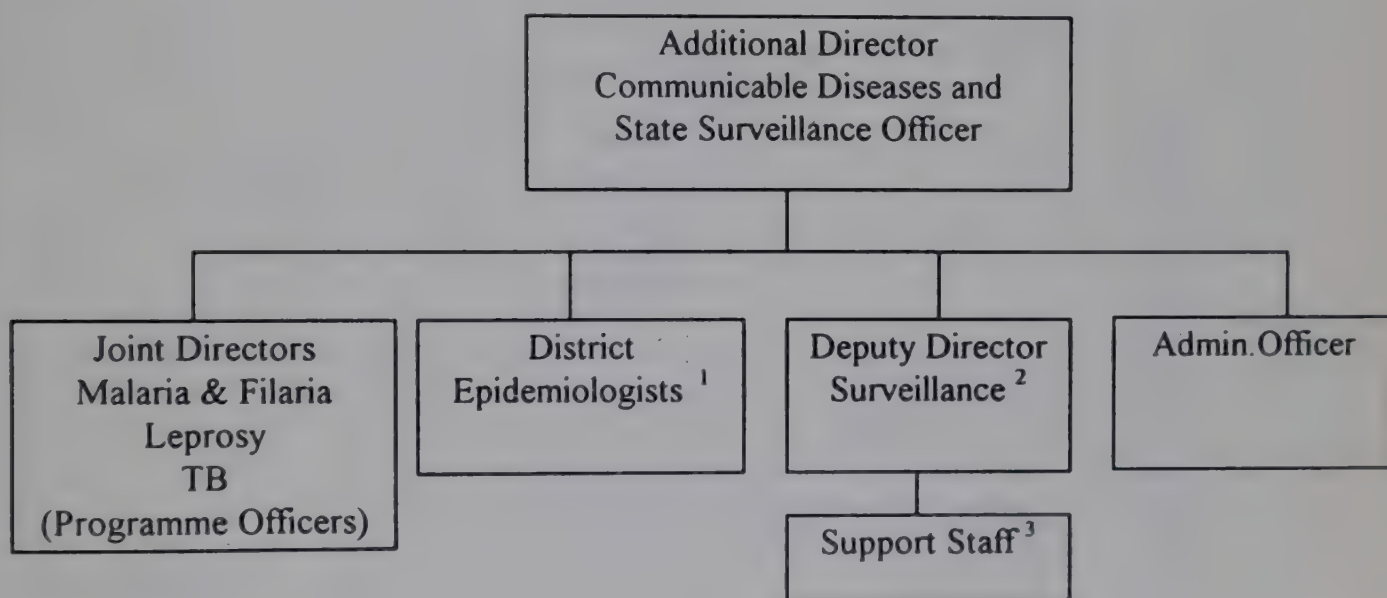
15. Group D (8 posts)

It is proposed to transfer this unit to Bangalore and placed under the Additional Director Communicable Diseases. It will function as the State level Surveillance Unit and also function as the Surveillance unit for Bangalore and Bangalore Rural Districts.

The functions of the State Level Surveillance Unit are:

- Evolve Strategies for Surveillance.
- Set up procedures for collection, analysis and reporting of morbidity and mortality data.
- Monitor the functioning of the District Surveillance Units.
- Co-ordinate with other related Departments at the State level, Indian Medical Association, Programme Officers, Voluntary Organisations, etc.
- Conduct surveys, compile morbidity and mortality data, by disease, for planning and working out priorities and strategies.
- Evaluate the effectiveness of interventions instituted to control epidemics.
- Carry out research studies and suggest innovative and the effective methods of intervention.

The proposed Organisational chart at the State level is graphically shown below.



Explanatory Notes :

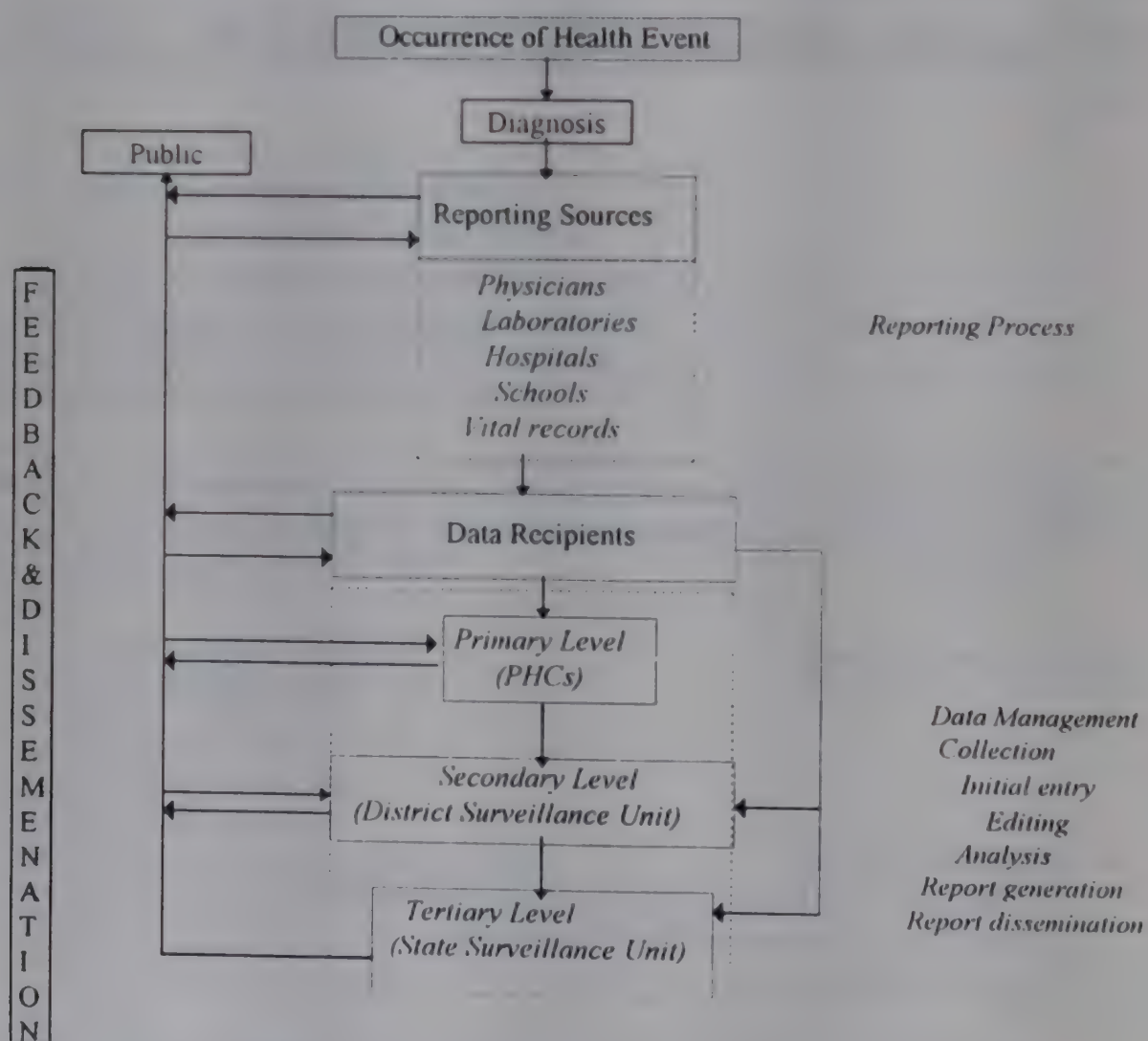
1. Upgraded post of District Laboratory Medical Officer.
2. Post along with staff shifted from Mandya.
3. Existing office staff

After this strengthened structure has been put into place and has functioned for at least one year, a professional agency will be hired to make an evaluation of the effectiveness of the proposed surveillance system.

The timeliness and effectiveness of the Surveillance System will depend on how well the various elements of the system, described in the flow chart at Figure 1 below, function at each of the levels.

The Surveillance System described below does not include the sentinel surveillance sites set up under the NACO-funded AIDS prevention and control programme. Effective functioning of the system also depends on the extent to which co-ordination takes place among the various Programme Officers. It is therefore proposed that a co-ordination mechanism will be set up at the State level, through the establishment of a high-level Committee under the Chairmanship of the Health Minister. Similar Committees will be established at the District level with the Deputy Commissioner, Chief Executive Officer of the Zilla Panchayat, District Health Officer, District Surgeon, and representatives of other concerned departments as Members. Effective functioning of the system will also require that, at all levels, proper orientation and training is provided to the personnel, including the grass-root functionaries.

Figure 1. Surveillance system flow chart :



It is proposed to attach the District Laboratory to the District Surveillance Unit and augment equipment facilities as per Annexure 2. A vehicle will be provided to each Unit.

The additional staff required for the District Surveillance Units is presented below.

Table 10.4.5.1 Additional Staff for Surveillance Activity

Category	Grade	Number	Million Rs.
Micro-biologist	1900-3700	18	1.361
Asst. Entomologist	1280-2375	18	0.872
Sr. Health Assistant (New)	1400-2675	18	0.990
Driver	1040-1900	18	0.715
		Total	3.938

10.5. Additional Staff

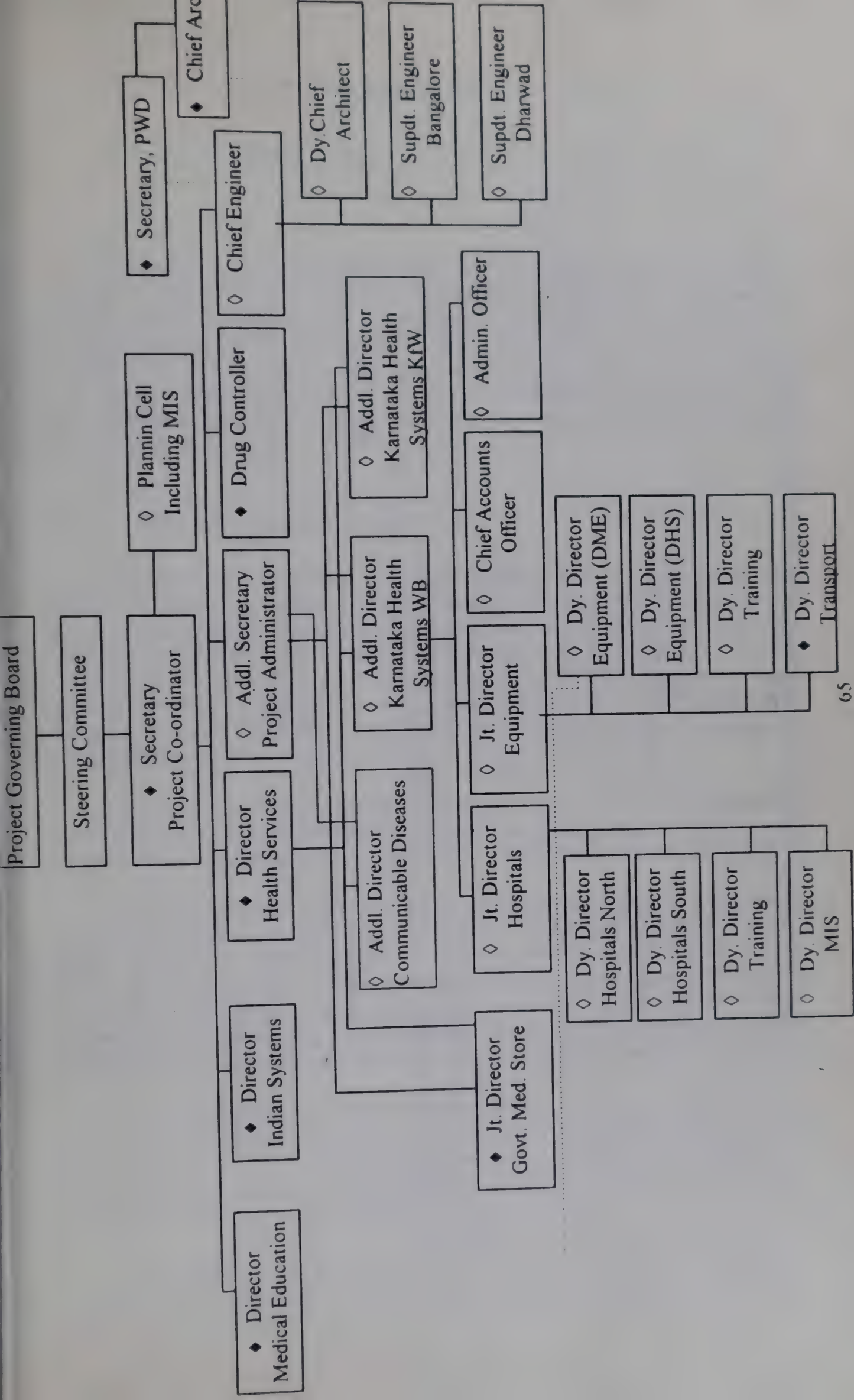
The additional staff required for Management Development and Institutional Strengthening is presented in Table 10.5.1.

Table 10.5.1 Additional Staff for Management Development and Institutional Strengthening

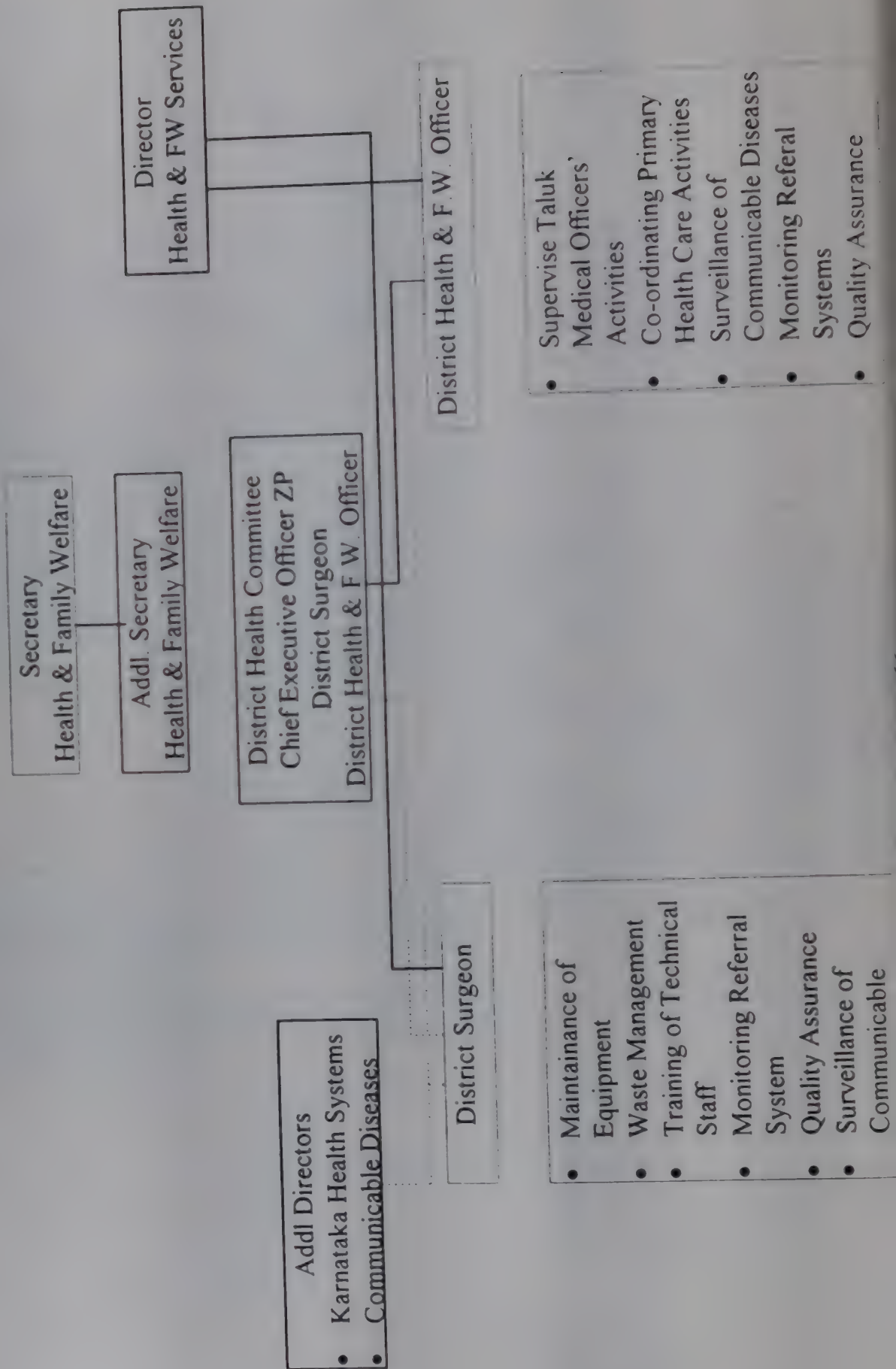
Designation	Grade	Number of Additional Posts					
		1	2	3	4	5	6
Additional Secretary	4400-5800	1					
Additional Director	4700-6400		1	1			
Joint Director	3825-5825		3	1		1	
Dy. Directors	3300-5300			4		3	
Chief Accounts Officer	3300-5300			1			
Chief Admin. Officer	3300-5300			1			
Chief Engineer	4550-5600				1		
Dy. Chief Architect	3300-5300				1		
Supdt. Engineer	3825-5825				2		
Exec. Engr./ Equip Engr Grade I	3300-5300				4	4	
Equip Engineer Grade II	2600-4575					22	
Ast. Exec. Eng/ Equip Engr Gr III	2375-4450				8	39	
Asst. Engineer	2050-3950				24		
Asst. Architect	2050-3950				2		
Under Secretary	2375-4450	1					
Section Officer	2050-3950	1					
Senior Assistant	1720-3300	1	4				
Stenographer	1400-2675	1					
Microbiologist	1900-3700						20
Asst. Entomologist (1900-3700)	1280-2375						20
Sr. Health Assistant	1400-2675						20
Office Superintendent	1720-3300					11	
Draftsman	1520-2900				1		
Technicians	1400-2675					187	
FDA	1280-2375	1	4	8	15	30	
SDA	1040-1900			8	15	47	
Typist	1040-1900		2	8	15		
Driver	1040-1900	1	4	151	15	27	20
Group D	840-1520		2	8	15	54	
Total		7	20	191	118	425	80

1. Secretariat, 2. Central Planning Cell, 3. Project Management, 4. Engineering Wing, 5. Equipment Maintenance Unit, 6. Surveillance Unit.

*. Includes drivers for 148 vehicles for 20 District Surgeons and 128 ADHOs in talukas. As 48 ADHOs at Subdivision Headquarters have been provided with vehicles they have not been included.



KARNATAKA HEALTH SYSTEMS: DISTRICT LEVEL ORGANISATION



Chapter 11

Improving Service Quality Access and Effectiveness

Secondary level health care facilities have not received the same level of attention as the primary level of health care resulting in imbalances between primary and secondary levels and an inadequate referral system. There is an unnecessary duplication of services at different levels resulting in similar level of care being provided in the primary, and secondary care institutions. Thus it is a common practice to notice the outpatient services in secondary level hospitals overburdened with patients suffering from ailments which could have been easily handled at the primary level.

11.1. Beds in Government Sector

The Planning Commission, in the seventh Five Year Plan document, has suggested a norm of one bed per thousand population which includes both government as well as private sectors. It has also stipulated that two thirds of the total beds, that is, 0.667 beds per thousand persons should be provided by the government sector. As compared to this norm, there are 0.586 persons per bed in the government sector. However, there is considerable variation across districts. In half the districts the availability of beds is below the average for the State and in six of them the number of beds per thousand persons exceeds 0.667.

The variation in beds per thousand persons is much wider if one looks at taluka level. Only 48 talukas have beds per person above the State average of 0.586. In 54 talukas the beds per thousand persons is below 0.3 and in nine of them it is below 0.2.

The epidemiological approach has been adopted in arriving at the requirement of beds in the government sector. The results of the 42nd Round of National Sample Survey indicate a hospital admission rate of 21.5 per thousand population and an average stay of 15 days. At an average occupancy rate of 80 percent, the total beds in the government and private sectors works out to 0.893 beds per thousand persons per bed. As two thirds of the beds are to be provided by the government sector, the beds per thousand persons should be 0.596 which is close to the state average of 0.586.

The bed strength is proposed to be increased in under serviced areas. In determining the available beds, the beds in PHUs and PHCs have been omitted as they are not staffed to provide 24 hour nursing care and consequently their bed utilisation is only 15 percent. The existing and proposed bed strength by taluka is presented in Annexure 2 and the summary by district is presented in Table 11.1.1.

The shortage of beds is estimated at 12,798 beds on the basis of average stay in the government hospitals of 15 days. However, it is expected that with the various Projects interventions the average stay will be brought down to 10 days, is taken as 10

days as in the case of hospitals in the private sector. In this scenario, the shortage in beds reduces to 6,423.

Table 11.1.1 Projected Bed requirement in Government Sector

District	Population in (000s) 1995	Bed Strength		Beds/Thousand Persons	
		Existing	Proposed	Existing	Proposed
Bangalore	5518.5	3184	3399	0.577	0.581
Bangalore Rural	1908.1	577	622	0.302	0.204
Belgaum	3786.1	1565	1728	0.413	0.322
Bellary	2062.7	1250	1458	0.606	0.597
Bidar	1335.9	758	941	0.567	0.531
Bijapur	3097.3	1323	1572	0.427	0.394
Chikmagalur	1089.0	864	1109	0.793	0.744
Chitradurga	2366.4	1932	2125	0.816	0.811
Dakshina Kannada	2878.1	2073	2186	0.720	0.585
Dharwad	3752.1	2010	2281	0.536	0.505
Gulbarga	2737.2	1374	1776	0.502	0.526
Hassan	1676.6	1083	1385	0.646	0.686
Kodagu	516.6	1322	1344	2.559	1.994
Kolar	2366.2	1419	1641	0.600	0.570
Mandya	1767.2	804	978	0.455	0.407
Mysore	3398.6	2839	3318	0.835	0.734
Raichur	2502.1	935	1448	0.374	0.424
Shimoga	2071.6	1235	1433	0.596	0.574
Tumkur	2442.2	1020	1312	0.418	0.373
Uttara Kannada	1313.3	901	1181	0.686	0.723
To be Allocated			457		
Karnataka State	48585.7	28468	33694	0.586	0.693
Gulbarga Division	8637.9	4317	5711	0.500	0.661
Other Three Divisions	39947.8	24151	28352	0.605	0.710

11.2. Extending/Renovating Community, Taluka and District Hospitals

It is proposed to carry out extension and renovation work in 253 hospitals of the State. During the project period 5,226 beds will be added thereby raising the bed strength from 28,468 to 33,694 including five major hospitals not covered by the project. The extension and renovation of 52 secondary level hospitals in Gulbarga Division is expected to be carried out with financial assistance from KfW.

The location and utilisation of existing capacity of the remaining 201 District and Taluka hospitals were studied. On the basis of the discussions held with the World Bank Mission in June, 1995 a list of 201 hospitals has been finalised for Extension and renovation. In all 3832 beds are being added to the existing bed strength of 14,858 by Extending 131 hospitals and renovating 70 hospitals. The number of hospitals of each type upgraded or renovated and bed strength is presented in Table 11.2.1

Table 11.2.1 Plan for Renovation/Extending by Type of Hospital & Location

Type of Hospital	Number of Hospitals		Beds		
	Renov ion	Extendi ng	Existing	Additio nal	Total
Community Health Centre	14	28	927	519	1446
Taluka Headquarters Hospital	34	71	3855	1727	5582
Sub-District HQ Hospital	9	16	2299	551	2850
District Hospital	6	9	5588	937	6525
Women & Children Hospital	5	6	2000	85	2085
Epidemic Disease Hospitals	2	1	189	13	202
	70	131	14858	3832	18690

A physical survey of infrastructure facilities of all secondary level hospitals listed in Table 11.2.1.1 was undertaken to determine the costs of renovation and/or upgradation. Preliminary estimates of costs of renovation of buildings, expansion to accommodate additional beds and facilities, and furniture and equipment have been made. The norms for equipment and space presented in Annexure 3 formed the basis for determining the costs. The estimates of cost of civil works for renovation/upgradation are presented in Annexure 4.

11.2.1. Establishing/Upgrading Casualty Wards

Forty five of the hospitals marked with “#” in Table 11.2.2 which are located on National highways or State highways have been selected for establishing or upgrading casualty wards. Each of these centres will cover an area with a radius of 50 Km. from the hospitals. The forty five centres will be covering the entire State and provide emergency care to the victims of accidents, violence and natural calamities. Ten of such centres are in the Gulbarga Division.

Each new or renovated casualty ward will have a casualty room, operation theatres, casualty ward with 10 beds and laboratory for testing and collecting blood from donors for immediate requirement. Each of these will also have wireless equipment and an ambulance fitted with wireless equipment. The items of furniture and equipment required for establishing /renovating casualty ward is given in Annexure 3.

Thirteen of the Taluka level hospitals and one Community Health Centre need 450 sq. meter extension to buildings.

Table 11.2. 1.1 List of Hospitals to be Extended/Renovated

Code	Place	Type of Health Facility	Bed Strength			
			Sanctioned	Existing	Proposed	Addition
Bangalore District						
112	Anekal	Taluka Hospital	30	16	50	34
103	Bangalore	HSIS Women & Children	120	120	120	0
102	Bangalore	Epidemic Diseases Hospital	128	128	128	0
101	Bangalore (@	Vanivilas Hospital	605	605	605	0
110	Krishnarajapuram	Taluka Hospital	100	10	100	90
111	Yellahanka	Taluka Hospital	16	9	100	91
District Total			999	888	1103	215
Bangalore Rural District						
201	Channapatna	Taluka Hospital	100	100	100	0
202	Devanhalli	Taluka Hospital	30	30	30	0
203	Doddaballapur #	Sub-Division Hospital	50	50	50	0
204	Hosakote	Taluka Hospital	30	23	30	7
205	Kanakapura	Taluka Hospital	50	50	50	0
206	Magadi	Taluka Hospital	30	30	30	0
207	Nelamangala #	Taluka Hospital	100	12	50	38
208	Ramanagaram #	Sub-Division Hospital	50	50	50	0
District Total			440	345	390	45
Belgaum District						
302	Athui	Taluka Hospital	30	28	50	22
301	Belgaum # (@	District Hospital	740	740	740	0
303	Chikodi	Sub-Division Hospital	50	13	50	37
304	Nipani #	Community Health Centre	30	10	30	20
305	Gokak	Taluka Hospital	50	40	50	10
306	Hukeri	Taluka Hospital	30	30	30	0
307	Khanapur	Taluka Hospital	30	28	30	2
308	Saundatti-Yellamma	Taluka Hospital	50	50	50	0
309	Yargatti	Community Health Centre	30	6	30	24
310	Ramdurg	Taluka Hospital	30	50	50	0
311	Raybag	Taluka Hospital	30	6	30	24
312	Bailhongal	Sub-Division Hospital	50	50	50	0
313	Kittur	Community Health Centre	30	6	30	24
District Total			1180	1057	1220	163
Bellary District						
402	Bellary	Women & Children Hospital	210	210	210	0
401	Bellary # (@	District Hospital	512	512	512	0
404	Kurugodu	Community Health Centre	30	6	30	24
405	Hadagalli	Taluka Hospital	30	30	50	20
406	Hagaribommanahalli	Taluka Hospital	30	30	50	20
407	Harpanahalli	Taluka Hospital	50	14	50	36
408	Hospet # (@	Sub-Division Hospital	100	100	100	0
409	Chikkajogihalli	Community Health Centre	50	50	50	0
410	Kudligi	Taluka Hospital	30	6	50	44
411	Kottur	Community Health Centre	30	6	30	24
412	Sandur	Taluka Hospital	30	30	50	20
413	Siraguppa	Taluka Hospital	30	30	50	20
District Total			1132	1024	1232	208

Code	Place	Type of Health Facility	Bed Strength			
			Sanctioned	Existing	Proposed	Addition
Bidar District						
502	Aurad	Taluka Hospital	30	30	50	20
503	Basavakalyan	Sub-Division Hospital	50	36	50	14
504	Bhalki	Taluka Hospital	100	68	100	32
501	Bidar # @	District Hospital	283	283	400	117
505	Hornnabad #	Taluka Hospital	50	50	50	0
506	Chitagoppa	Community Health Centre	30	30	30	0
507	Mannekahalli	Community Health Centre	30	30	30	0
District Total				527	710	183
Bijapur District						
603	Badami	Taluka Hospital	30	30	30	0
604	Guledagudda	Community Health Centre	30	30	30	0
605	Bagalkot @	Sub-Division Hospital	150	150	150	0
606	Basavana Bagevadi	Taluka Hospital	30	10	50	40
601	Bijapur # @	District Hospital	396	396	400	4
607	Bilgi	Taluka Hospital	30	6	30	24
608	Hungund #	Taluka Hospital	50	45	50	5
609	Ilkal	Community Health Centre	50	36	50	14
610	Indi	Sub-Division Hospital	50	50	50	0
611	Tadavalaga	Community Health Centre	30	6	30	24
612	Jamkhandi	Sub-Division Hospital	50	50	100	50
613	Rabkavi Banahatti	Community Health Centre	30	30	30	0
614	Kalgi	Community Health Centre	30	6	30	24
615	Muddebihal	Taluka Hospital	30	30	50	20
616	Talikota	Community Health Centre	30	30	30	0
617	Mahalingpur	Community Health Centre	30	6	30	24
618	Mudhol	Taluka Hospital	30	30	30	0
619	Sindgi	Taluka Hospital	50	30	50	20
District Total			1126	971	1220	249
Chikmagalur District						
702	Chikmagalur	Women & Children Hospital	100	88	100	12
701	Chikmagalur # @	District Hospital	300	177	300	123
703	Birur	Community Health Centre	50	50	50	0
704	Kadur	Taluka Hospital	50	50	100	50
705	Koppa	Taluka Hospital	30	50	50	0
706	Mudigere	Taluka Hospital	100	64	100	36
707	Narasimharajapura	Taluka Hospital	30	18	30	12
708	Sringeri	Taluka Hospital	14	18	30	12
709	Tarikere #	Sub-Division Hospital	50	50	50	0
District Total			724	565	810	245
Chitradurga District						
802	Challakere	Taluka Hospital	100	30	50	20
803	Nayakanahatti	Community Health Centre	30	0	30	30
804	Parasurampura	Community Health Centre	30	30	30	0
805	Bharamasagara	Community Health Centre	30	8	30	22
801	Chitradurga #	District Hospital	450	389	450	61
806	Sirigere	Taluka Hospital	30	30	30	0
807	Davangre	Women & Children Hospital	100	100	100	0
808	Davangre # @	Sub-Division Hospital	850	850	850	0
809	Harihar	Taluka Hospital	50	50	50	0
810	Hiriyur # @	Taluka Hospital	100	74	100	26

Code	Place	Type of Health Facility	Bed Strength			
			Sanctioned	Existing	Proposed	Addition
811	Holalkere	Taluka Hospital	30	30	50	20
812	Hosdurga	Taluka Hospital	30	36	50	14
813	Jagalur	Taluka Hospital	50	50	50	0
814	Molakalmuru #	Taluka Hospital	50	50	50	0
<i>District Total</i>			1930	1727	1920	193
<i>Dakshina Kannada District</i>						
904	Bantval	Taluka Hospital	30	30	30	0
905	Beltangadi	Taluka Hospital	30	30	30	0
906	Karkal	Taluka Hospital	200	100	100	0
907	Nitte	Community Health Centre	30	6	30	24
908	Kundapura #	Sub-Division Hospital	93	82	100	18
901	Mangalore # @	Wenlock District Hospital	705	705	705	0
902	Mangalore	Lady Goshen Hospital	260	260	260	0
909	Mulki	Community Health Centre	50	44	50	6
910	Puttur # @	Sub-Division Hospital	64	64	100	36
911	Sulya	Taluka Hospital	50	30	50	20
912	Shirva	Community Health Centre	30	21	30	9
913	Udupi @	Taluka Hospital	124	124	124	0
914	Udupi	Women & Children Hospital	76	76	76	0
<i>District Total</i>			1742	1572	1685	113
<i>Dharwad District</i>						
1003	Byadgi	Taluka Hospital	30	30	30	0
1001	Dharwad	District Hospital	250	170	250	80
1004	Gadag	Women & Children Hospital	45	45	50	5
1005	Gadag @	Sub-Division Hospital	114	114	114	0
1006	Akki Alur	Community Health Centre	30	30	30	0
1007	Hangal	Taluka Hospital	30	30	30	0
1008	Haveri #	Sub-Division Hospital	60	58	100	42
1009	Hirekerur	Taluka Hospital	30	26	50	24
1010	Hubli # @	KMC Hospital	740	740	740	0
1011	Kalghatgi	Taluka Hospital	30	6	30	24
1012	Kundgol	Taluka Hospital	30	30	30	0
1013	Mundargi	Taluka Hospital	30	30	30	0
1014	Nargund	Taluka Hospital	30	24	30	6
1015	Navalgund	Taluka Hospital	30	18	30	12
1016	Ranibennur	Taluka Hospital	50	30	50	20
1017	Ranibennur	Taluka Hospital	30	30	30	0
1018	Gajendragarh	Community Health Centre	30	30	30	0
1019	Ron	Taluka Hospital	30	30	30	0
1020	Savanur	Sub-Division Hospital	30	30	50	20
1021	Shiggaon	Taluka Hospital	30	30	50	20
1022	Lakshmeshwar	Community Health Centre	30	25	30	5
1023	Shirhatti	Taluka Hospital	30	17	30	13
<i>District Total</i>			1739	1573	1844	271
<i>Gulbarga District</i>						
1102	Afzalpur	Taluka Hospital	30	2	50	48
1103	Aland	Taluka Hospital	30	30	50	20
1104	Madanahippargi	Community Health Centre	30	10	30	20
1105	Nimbarga	Community Health Centre	30	0	30	30
1106	Chincholi	Taluka Hospital	30	30	50	20
1107	Gaddakeshwar	Community Health Centre	30	0	30	30

Code	Place	Type of Health Facility	Bed Strength			
			Sanctioned	Existing	Proposed	Addition
1108	Chitapur	Taluka Hospital	30	30	50	20
1109	Hebbal	Community Health Centre	30	30	30	0
1110	Kalgi	Community Health Centre	30	6	30	24
1111	Shahbad	Community Health Centre	30	20	30	10
1101	Gulbarga # (@)	District Hospital	700	700	700	0
1112	Jevargi	Taluka Hospital	100	26	50	24
1113	Mudhol	Community Health Centre	30	6	30	24
1114	Sedun	Sub-Division Hospital	50	50	50	0
1115	Shahapur #	Taluka Hospital	30	8	50	42
1116	Shorapur	Taluka Hospital	30	30	50	20
1117	Gurumatkal	Community Health Centre	30	30	30	0
1118	Yadgir @	Sub-Division Hospital	100	30	100	70
<i>District Total</i>			<i>1370</i>	<i>1038</i>	<i>1440</i>	<i>402</i>
<i>Hassan District</i>						
1202	Alur	Taluka Hospital	30	30	30	0
1203	Arkalgud	Taluka Hospital	30	30	50	20
1204	Konanur	Community Health Centre	30	15	30	15
1205	Arsikere	Taluka Hospital	150	100	100	0
1206	Belur	Taluka Hospital	30	10	50	40
1207	Channarayapatna #	Taluka Hospital	46	46	50	4
1208	Hirisave	Community Health Centre	30	20	30	10
1209	Dudda	Community Health Centre	30	6	30	24
1201	Hassan # @	District Hospital	500	344	500	156
1210	Halli Mysore	Community Health Centre	30	14	30	16
1211	Holenarasipur	Taluka Hospital	100	100	100	0
1212	Sakleshpur #	Sub-Division Hospital	133	133	150	17
<i>District Total</i>			<i>1139</i>	<i>848</i>	<i>1150</i>	<i>302</i>
<i>Kodagu District</i>						
1302	Madikeri	Women & Children Hospital	210	210	210	0
1301	Madikeri # @	District Hospital	200	200	200	0
1303	Kushalnagar	Community Health Centre	50	50	50	0
1304	Sanivarasante	Community Health Centre	30	30	30	0
1305	Somvarpet	Taluka Hospital	120	120	120	0
1306	Gonikoppal	Community Health Centre	50	50	50	0
1307	Kutta	Community Health Centre	28	28	30	2
1308	Polibetta	Community Health Centre	40	40	50	10
1309	Siddapura	Community Health Centre	40	40	50	10
1310	Virajpet @	Taluka Hospital	240	240	240	0
<i>District Total</i>			<i>1008</i>	<i>1008</i>	<i>1030</i>	<i>22</i>
<i>Kolar District</i>						
1403	Bagepalli	Taluka Hospital	50	50	50	0
1404	Bangarapet	Taluka Hospital	30	35	35	0
1405	Robertsonpet	Epidemic Disease Hospital	30	24	24	0
1406	Robertsonpet	KGF Hospital	150	140	150	10
1407	Robertsonpet	Women & Children Hospital	100	85	100	15
1408	Chikballapur	Sub-Division Hospital	60	60	100	40
1409	Batlhalli	Community Health Centre	30	30	30	0
1410	Chintamani	Taluka Hospital	150	74	100	26
1411	Gauribidanur	Taluka Hospital	110	110	110	0
1412	Gudibanda	Taluka Hospital	40	40	50	10
1401	Kolar # (a)	District Hospital	400	317	400	83

Code	Place	Type of Health Facility	Bed Strength			
			Sanctioned	Existing	Proposed	Addition
1413	Malur	Taluka Hospital	32	32	50	18
1414	Mulbagal	Taluka Hospital	30	30	50	20
1415	Sidlaghatta	Taluka Hospital	50	50	50	0
1416	Srinivaspur	Taluka Hospital	50	74	74	0
<i>District Total</i>			<i>1312</i>	<i>1151</i>	<i>1373</i>	<i>222</i>
<i>Mandya District</i>						
1503	Krishnarajpet	Taluka Hospital	30	30	30	0
1504	Kalamuddanadoddi	Community Health Centre	30	6	30	24
1505	Maddur	Taluka Hospital	50	40	50	10
1506	Malavalli	Taluka Hospital	50	50	100	50
1501	Mandya # (a)	District Hospital	400	310	400	90
1507	Nagamangala	Taluka Hospital	30	30	30	0
1508	Pandavapura	Sub-Division Hospital	50	50	50	0
1509	Shrirangapattana	Taluka Hospital	30	30	30	0
<i>District Total</i>			<i>670</i>	<i>546</i>	<i>720</i>	<i>174</i>
<i>Mysore District</i>						
1608	Chamarajnagar	Taluka Hospital	150	112	150	38
1609	Gundulpet #	Taluka Hospital	50	50	100	50
1610	Kabbahalli	Community Health Centre	30	7	30	23
1611	Heggadadevankote	Taluka Hospital	50	50	50	0
1612	Hunsur #	Sub-Division Hospital	50	50	100	50
1613	Kollegal # (a)	Taluka Hospital	107	100	150	50
1614	Krishnarajanagara	Taluka Hospital	50	80	100	20
1615	Saligrama	Community Health Centre	30	10	30	20
1601	Mysore # (a)	Cheluvanba Hospital	400	390	400	10
1603	Mysore	Epidemic Disease Hospital	50	50	50	0
1604	Mysore	SMT Maternity Hospital	50	50	50	0
1605	Mysore	NPC Maternity Hospital	24	22	30	8
1606	Mysore	VV Puram, Maternity Hospital	24	22	30	8
1616	Nanjangud	Sub-Division Hospital	100	30	100	70
1617	Piriyapatna	Taluka Hospital	30	30	30	0
1618	Bannur	Community Health Centre	30	6	30	24
1619	Talakad	Community Health Centre	30	6	30	24
1620	Tiramakudal-Narsipur	Sub-Division Hospital	30	40	100	60
1621	Yelandur	Taluka Hospital	6	6	30	24
<i>District Total</i>			<i>1291</i>	<i>1111</i>	<i>1590</i>	<i>479</i>
<i>Raichur District</i>						
1702	Devadurga	Sub-Division Hospital	30	16	50	34
1703	Gangawati #	Sub-Division Hospital	30	30	50	20
1704	Kanakagiri	Community Health Centre	30	6	30	24
1705	Koratgi	Community Health Centre	30	6	30	24
1706	Koppal	Sub-Division Hospital	30	17	100	83
1707	Munirabad	Community Health Centre	30	30	30	0
1708	Kushtagi	Taluka Hospital	30	30	50	20
1709	Lingsugur # (a)	Sub-Division Hospital	50	30	100	70
1710	Mudgal	Community Health Centre	30	6	30	24
1711	Manvi	Community Health Centre	30	30	50	20
1701	Raichur # (a)	District Hospital	250	250	400	150
1712	Sindhur #	Taluka Hospital	30	30	50	20
1713	Kuknoor	Community Health Centre	30	30	30	0
1714	Yelbarga	Taluka Hospital	30	6	30	24

Code	Place	Type of Health Facility	Bed Strength			
			Sanctioned	Existing	Proposed	Addition
1715	Mangalore	Community Health Centre	30	30	30	0
	<i>District Total</i>		690	547	1060	513
	<i>Shimoga District</i>					
1902	Bhadravati	Taluka Hospital	30	30	50	20
1903	Channagiri	Taluka Hospital	50	50	50	0
1804	Honnali	Taluka Hospital	30	6	30	24
1805	Hosanagara	Taluka Hospital	30	30	50	20
1806	Sagar # @	Sub-Division Hospital	100	100	100	0
1807	Shikarpur	Taluka Hospital	30	28	100	72
1808	Siralkoppa	Community Health Centre	30	6	30	24
1801	Shimoga # @	District Hospital	600	600	600	0
1809	Sorab	Taluka Hospital	50	18	50	32
1810	Kannangi	Community Health Centre	28	24	30	6
1811	Tirthahalli	Taluka Hospital	58	100	100	0
	<i>District Total</i>		1036	992	1190	198
	<i>Tumkur District</i>					
1902	Chiknayakanhalli	Taluka Hospital	30	30	50	20
1903	Gubbi	Taluka Hospital	30	16	30	14
1904	Koratagere	Taluka Hospital	30	30	50	20
1905	Kunigal	Taluka Hospital	30	30	50	20
1906	Madhugiri	Sub-Division Hospital	50	50	100	50
1907	Pavagada	Taluka Hospital	30	30	50	20
1908	Sira	Taluka Hospital	30	30	50	20
1909	Tiptur	Sub-Division Hospital	100	56	100	44
1901	Tumkur # @	District Hospital	400	330	400	70
1910	Turuvekere	Taluka Hospital	30	16	30	14
	<i>Tumkur District</i>			618	910	292
	<i>Uttara Kannada District</i>					
2002	Ankola	Taluka Hospital	30	12	50	38
2003	Bhatkal	Taluka Hospital	40	40	50	10
2004	Dandeli	Community Health Centre	30	46	50	4
2005	Haliyal	Taluka Hospital	30	30	30	0
2006	Honavar #	Taluka Hospital	30	30	50	20
2001	Karwar # @	District Hospital	400	300	400	100
2007	Kumta	Sub-Division Hospital	30	30	50	20
2008	(Tibetan) Mundgod	Community Health Centre	55	50	50	0
2009	Mundgod	Taluka Hospital	30	6	30	24
2010	Siddapur	Taluka Hospital	30	30	30	0
2011	Sirsi # @	Sub-Division Hospital	60	56	100	44
2012	Supa (Joida)	Taluka Hospital	30	10	30	20
2013	Yellapur	Taluka Hospital	30	30	30	0
	<i>District Total</i>		825	670	950	280
	<i>Grand Total Under Project</i>		20353	18778	23547	4769
	<i>Grand Total Under World Bank Funding</i>		17161	15642	19105	3463
	<i>Grand Total Under KfW Funding</i>		3192	3136	4442	1306

Casualty Wards Proposed

@ Blood Banks Proposed

11.2.2. Additional Staff

The additional staff required to meet the needs of extending/renovating is given in Table 11.2.2.1. The requirement is worked out on the basis of norms presented in Annexure 2.

Table 11.2.2.1. Requirement of Additional Staff.

Category	Grade	Gulbarga Division	Other Divisions	Total
1. Surgeon	3170-5300	0	3	4
2. Dy. Civil Surgeon (R.M.O.)	2600-4575	21	52	73
3. Assistant Surgeon	2375-4450	75	325	401
4. Dental Assistant Surgeon	2375-4450	12	55	67
5. Nursing supdt. Grade-I	2150-4200	0	3	4
6. Nursing Supdt. Grade-II	1900-3700	6	40	46
7. Nursing Tutor	1900-3700	2	16	18
8. Staff Nurse	1520-2900	214	887	1101
9. Physiotherapist	1520-2900	5	31	36
10. Pharmacist Grade I	1400-2675	2	19	21
11. Pharmacist Grade II	1280-2450	22	57	80
12. Sr. Lab Technician	1400-2675	22	55	77
13. Jr. Lab Technician	1280-2375	2	12	14
14. Jr. Lab Attendants	870-1520	13	58	71
15. Refractionist	1280-2375	12	55	67
16. Radiographer	1400-2675	1	6	7
17. x-ray Technician	1280-2375	17	85	103
18. Dark Room Assistant	840-1340	12	55	67
19. Lay Secretary	1900-3700	12	55	67
20. Office Superintendent	1720-3300	5	31	36
21. Senior Assistant	1280-2375	5	30	35
22. Junior Assistant	1040-1900	34	109	144
23. Typist-cum-clerk	1040-1900	1	6	7
24. Medical Record Technician	1400-2675	1	6	7
25. Electrician	1400-2675	0	3	4
26. Carpenter	870-1520	0	3	4
27. Plumber	870-1520	0	3	4
28. Cook	870-1520	13	58	71
29. Helper to Cook	840-1340	26	116	141
30. Group D	840-1340	229	884	1113
31. Driver	1040-1900	35	183	217
32. Psychiatrist	3300-5300	0	3	4
33. Clinical Psychologist	2375-4450	0	3	4
34. Psychiatric Social worker	1400-2675	0	3	4
35. ECG Technician	1280-2375	0	3	4
36. Social Worker (Skin VD)	1400-2675	1	6	7
37. Junior Health assistant	1130-2100	6	1	7
38. Wireless operator	1040-1900	20	70	90
Total Number		830	3391	4221

The allocation of 369 beds to hospitals in Bangalore, Belgaum and Mysore Revenue Divisions and 88 in Gulbarga Division will be finalised before Project launch

11.3. Staff Quarters

The availability and condition of staff quarters is being assessed during the survey of physical facilities. The cost of renovation is being assessed. Where quarters are less than the norms presented below additional quarters are proposed to be constructed. The cost of such renovation/ new construction is included in the cost of extending/renovating the hospitals.

	Number of Quarters		
	Doctors	Nurses	Group D
30 bed hospital	2	2	2
50 bed Hospital	2	4	2
100 bed hospital	4	6	4
250 bed hospital	8	12	8

11.4. Management of Hospital Waste

Hospital waste is the term used to denote unwanted material produced by various procedures such as aseptic surgery, dialysis etc., and other laboratory procedures. Hospital wastes comprise both infectious and non-infectious wastes generated in the different sections of a hospital, which if not properly collected, transported or disposed off, may cause cross-infections in the hospital and pose a major public health hazard and environmental pollution.

The state has only recently taken some preliminary steps in recognition of the fact that the management and disposal of hospital waste is a critical element in the effective functioning of a high quality health care system. The problem is two-fold: that of establishing a hospital waste disposal system on efficient and scientific lines in respect of the government hospitals, and also of providing a set of guidelines and an enforcement framework for the large network of private hospitals.

11.4.1. Categories of Waste

The hospital wastes are commonly categorised in the following manner.

1. General Waste: This includes domestic type of waste, packing material, garbage from hospital kitchen and other waste materials which do not pose a special handling problem or hazards to human health or environment
2. Chemical Waste: This waste comprises material discarded from diagnostic and experimental work and cleaning, housekeeping and disinfecting work. This may contain hazardous animal wastes which are toxic, corrosive,

flammable, reactive or genotoxic. Such wastes require special precautions in handling.

3. Pathological Waste: This waste consists of tissues, body parts removed in surgery, and human fetuses. This may be infectious waste material.
4. Highly Infectious Waste: This contains pathogens in sufficient quantity and exposure to it could result in disease. This category includes cultures and stock of infectious agents from laboratory work, waste from surgery and autopsies on patients with infectious diseases, wastes from infected patients in isolation wards, wastes that have been in contact with animals inoculated with an infectious agent, etc.
5. Sharp Objects: These include needles, syringes, scalpels, blades, broken glass, nails and other type of materials which can cause puncture.
6. Pharmaceutical Wastes: This includes pharmaceutical products, drugs and chemicals that have been returned from wards, or having spilled or are out-dated or contaminated, or discarded for any other reasons.
7. Pressurised Containers: This includes those containers used for demonstration or instrumental purposes containing innocuous or inert gas and aerosol cans which may explode if incinerated or accidentally punctured.
8. Laboratory Waste: This includes wastes which arise during storage, use and spillage of solid drugs and chemicals, blood and blood products, which may be toxic or contaminated.

11.4.2. Hazards of Hospital Wastes

Hospital waste exposure can be hazardous in two ways :

1. Occupational Hazards and Health Risks: Persons who are liable to be exposed to these health hazards can be classified in two categories:
 - a. Patients and personnel in the hospital; and
 - b. Personnel in the organisations providing support services on contract basis, namely, milkmen, laundry staff, sweepers, etc.

In general, there is insufficient awareness of health hazards associated with contaminated or infectious wastes. The health of all the workers working in or associated with the hospitals can be at risk and it is important that they be made aware of the risk and be trained in precautionary measures and disposal procedures.

2. Impact of Hospital Wastes on Human Health and Environment: Many hospitals dump infected refuse like blood soaked bandages, used needles and syringes, leftovers from the canteen, etc., into small pits or in nearby municipal bins or indiscriminately throw them in the backyards of the hospital premises. Such refuse becomes an ideal breeding ground for rodents, mosquitoes, bacteria, viruses and flies. It pollutes the entire hospital as well as the surrounding environment. It exposes the sweepers, other hospital personnel and rag-pickers to infection. There is also the added problem of a bad stench all round. Whenever the hospital wastes are mixed with municipal wastes, strict precaution is necessary, as all types of hazards due to contamination are possible.

11.4.3. Scheme for Management of Hospital Wastes

The quantity of hospital waste generated in the State is estimated to be about two Kg. per bed per day. It needs to be mentioned that in USA the quantities are as high as five Kg. per bed per day, mainly due to the common use of disposable items. The quantities are expected to increase in the State with the passage of time. It is therefore proposed to plan for management of twice the expected quantity.

The basic principle underlying the proper management of hospital waste is that there must be removal and disposal of waste as hygienically and as economically as possible, by methods that, at all stages minimise the risk to health and the environment. As far as possible, all waste, excluding the ordinary garbage portion should be treated and disposed off in the hospital premises on a scientific basis.

General Waste: The first step in waste management is to segregate the general wastes, such as kitchen waste, paper, etc. However, these need to be first internally stored in leak proof containers at convenient points in the hospital, and should be so designed as to make them easy for transport. Pressurised containers (aerosol cans) should also be kept along with general waste as they may explode if incinerated.

The general waste should be stored at specially designed covered areas to be picked up by the municipal authorities. These storage areas must be convenient for collection by the municipal staff.

Hazardous and Infected Waste: All other wastes such as chemical wastes, pathological wastes, sharp objects, laboratory and surgical wastes should be initially stored separately in air-tight leak proof containers, at convenient points. These points need to be identified by the hospital authorities.

Ideally, some of these wastes should also be recycled; however, in view of the practical difficulties involved, recycling of hazardous wastes is not being proposed.

The methods of waste treatment are:

- (i) steam sterilisation
- (ii) incineration.

Factors affecting the treatment efficacy include the type and amount of waste, its density, chemical characteristics, water content, packaging and load configuration. By integrating the activity of steam sterilisation and incineration with each specific waste component, an efficient program can be established by defining program components and their inter relationship with each other. These components are:

- (i) segregation
- (ii) containment and treatment / disposal.

Segregation: The first step is the segregation of waste components into predesignated categories. The components comprising infectious waste are properly segregated. The waste should be discarded into approved waste containers differentiated by colour coding.

Examination of various components reveals that these materials principally include body tissues, parts and body fluids.

Containment: The primary objective is to minimise exposure to infectious materials.

While incineration only requires the packaging to be combustible, steam sterilisation calls for stringent norms, like load configuration, to be considered.

Several forms of packaging like the autoclavable bags which are designed to be heat resistant under sterilisation temperatures of up to 250 - 280 degree Fahrenheit are available.

Incineration Incineration is a process by which solid wastes are converted into ash and harmless gases. Its effectiveness depends on the type of material being burnt and the design of the incinerator. Generally, incinerators used in hospitals work at temperatures of 1400 degree Fahrenheit and work on anatomical, fluid and infectious wastes. They cannot be used, however, for destroying waste with a high plastic content. For these, multi chambered incinerators with working temperature of 1800 degree Fahrenheit with a 1.5 - 2.0 second gas retention time must be used.

Steam Sterilisation. In this process, saturated steam is used to achieve sterilisation. Operating temperatures range from 250 degree Fahrenheit at 18 psi to 270 degree Fahrenheit at 28 - 30 psi. The degree of effectiveness depends on the degree of steam penetration. Decontamination is achieved by thorough heat transfer mediated by direct steam contact to the micro organisms or secondarily, through heat transfer by conduction. Direct heat transfer is quick, where as by conduction is relatively slow. Factors such as load density, containment barriers and load configuration need to be seriously considered to ensure rapid and effective decontamination.

The above techniques have both advantages and drawbacks. The basis of their selection and efficacy of subsequent use depends on the type of waste being treated and load content besides a variety of other factors.

Only two forms of disposal of hazardous wastes are being proposed

1. Incinerators for CHCs, Taluka and District Hospitals;
2. Burial in respect of Sub-centres/PHCs.

Incinerators: At present, very few major government hospitals have installed incinerators. All hospitals with 30 beds and above will need to install incinerators. Incineration is the easiest, fastest and most effective method for the disposal of hazardous hospital waste. Incinerators come with various capacities. However, the following specifications will need to be ensured for the incinerator:

1. All emissions and residues should be pathogen free.
2. Chimneys must be designed and constructed to remove combustion gases effectively.
3. Incinerators must be safe to operate.
4. Incinerator capacity and feed rate should be adequate.

Small Institutions: In PHCs, the problem is compounded by the fact that even for ordinary garbage, there is no proper garbage removal system by the local authorities. At PHCs/Sub-centres, deep pits will need to be excavated and the area isolated. This is not altogether a satisfactory system, but would become the first step in improving the hospital waste management system in the state.

Community Health Centres, Taluk and district Hospitals are proposed to be provided with colour coded closed bins with wheels, wheel barrows and incinerators as in Table 11.4.3.1. However, the same guiding principles regarding initial segregation and secondary disposal of hazardous wastes need to be implemented in all institutions irrespective of size.

Table 11.4.3.1 Provision of Equipment for Handling Waste

Hospital Size	Colour coded Storage Bins	Wheel Barrows	Incinerator Capacity (Kg/Hr)
30 beds	3	1	10
50 beds	5	2	10
100 beds	10	4	30
150 beds	15	6	50
250 beds	25	10	50
400 beds	40	16	153
500 beds	50	20	153
750 beds	75	30	153

Training and Supervision

All health care establishments should have a manual on waste handling procedure. People responsible for waste management should be clearly identified and suitably oriented. One Medical Doctor should be assigned the responsibility of waste disposal at each institutions. Waste handling procedures should be made known and

readily available to all personnel concerned, both at senior and junior levels. Basic training in waste handling should be given to all concerned personnel. In-house training at minimal cost can be organised at the hospital itself.

Private Institutions

A scientific waste management system needs to be implemented in private health care establishments as well. The proposed Health Care Regulations Act, therefore needs to include the laying down of standards to be followed by all private health care institutions, big and small.

11.5. Maintenance of Buildings

The maintenance of the buildings is the responsibility of the Public Works Department (PWD) of the state and the Zilla Parishads in their respective jurisdictions. There is no provision in the budget of the Health Department for maintenance work, but a provision is made in the budget of the PWD for maintenance of buildings of the health department along with all government buildings in the state. The PWD in turn allocates funds for maintenance to the Zilla Parishads for the buildings under its jurisdiction. The budget provision is made on the basis of 2 percent of the original cost of construction of buildings put up after 1976 and four percent for those constructed prior to 1976. The original cost of construction is so low that the budget provision is woefully inadequate to maintain the buildings at the current prices of building materials and labour costs.

The Chief Medical Officer of the hospital building has no control over the maintenance work of the buildings in his complex. He has no resources at his disposal to carry out even minor but urgent repairs and has to depend on the PWD for whom, the construction of new buildings receives a higher priority than maintenance work. The net result is a gradual deterioration of the condition of the structure and facilities and higher rehabilitation cost.

In order to improve the quality and timeliness of maintenance activity it is proposed to make provision in the budget of the Health Department at the rate of 2.0 percent of the replacement cost of the buildings rather than on original cost of the structures. The annual maintenance will be the responsibility of the Engineering Wing of the Department of Health rather than the PWD. In order to facilitate timely execution of minor repairs half of one percent will be made available to the Chief Medical Officer of the hospital. The balance one and half percent will be available to the Engineering Wing for annual maintenance.

Chapter 12

Upgradation of Clinical Effectiveness

12.1. Clinical Training for Physicians, Specialists, Dentists, Nurses and Laboratory Technicians

12.1.1. In-service Training: Policy and Strategy

It is obvious that the quality of clinical services provided by the hospitals, depends largely on the clinical, technical and managerial skills of the personnel in various categories employed in the hospital. In order to improve the quality and effectiveness of hospital services in the government sector, it is necessary to establish a system of regular in-service training of all categories of staff to update their clinical, managerial and maintenance skills. Training should focus on the clinical and practical skills so as to enable staff to provide good quality care in the range of services that have been defined in Annexure 3 as the normative framework for each hospital. Training has also to cover the use of equipment by medical and paramedical staff and to carry out simple maintenance checks. The Civil Surgeons, Resident Medical Officers and Hospital Superintendents have to be trained in the latest techniques of hospital administration. Lastly, the perspectives of hospital doctors have to be broadened to recognise the health care needs of the community so that effective support can be provided to the primary level by the secondary level hospitals.

The Department of Health and Family Welfare, Government of Karnataka constituted a working group to conduct a rapid assessment of training needs of different categories of staff working in Community Health Centres, Taluka and District level General Hospitals. The working group was composed of experienced clinicians, hospital superintendents and matrons drawn from teaching institutions in the government sector. The Working Group formed two teams and visited a number of hospitals ranging in size from 30 to 400 beds and interacted with medical and paramedical staff of the hospitals.

Training in Clinical skills

The working group concluded that a training programme is necessary for all categories of doctors/specialists, staff nurses and technicians working in hospitals at Community, Taluka and District Levels. Every staff member should undergo refresher course once in five years. The group identified two distinct groups who should be provided appropriate training for upgrading clinical skills. The groups are:

- Those who have postgraduate qualifications but have been working in areas where their skills acquired during postgraduate studies are not being utilised, and
- Those who have not had post graduate training

The number of staff, category wise, to be trained is presented in Table 12.1.1.1

Table 12.1.1.1 Category wise Staff to be Trained

Category	Number
1. Physician	270
2. General Surgeon	270
3. Gynaecologist	270
4. Dental Surgeon	270
5. Anaesthetist	182
6. Paediatrician	182
7. Ophthalmologist	182
8. Orthopedic Surgeon	226
9. ENT Surgeon	182
10. Skin Specialist	45
11. Psychiatrist	45
12. Radiologist	182
13. Pathologist	45
14. Forensic Expert	45
15. General Duty Doctors	222
Total Doctors	2713
16. Nursing Supdt.	558
17. Staff Nurse	5173
18. Lab Technician	515

The training programmes to be conducted for each category of staff, their duration and location have been identified and presented in Table 12.1.1.2. As the practical training to be provided for different levels of functionaries are diverse and the teaching institutions run by Govt. of Karnataka alone cannot cope with the workload, institutions in the private sector within the state as well as government and private sector institutions outside the State have been identified for different specialities. The doctors and specialists will be posted to such institutions and attached to expert clinicians in their speciality for providing hands-on training. During the posting the trainees will be required to observe and practice pre-defined skills and procedures. The trainees are expected to repeat the procedures under the observation of the expert clinician who will assess the levels of competence attained by the trainees.

As there is a shortage of Anaesthetists, General Duty Doctors with MBBS degree will be deputed to undergo a six-month special training course in Anaesthesia at all teaching hospitals in the government and private sector in Karnataka.

Staff Nurses and Laboratory Technicians will be deputed for training to all teaching institutions in both government and private sectors within Karnataka.

**Table 12.1.1.2 Training Programmes for Upgrading Clinical & Technical Skills
Recommendations of Working Group**

Personnel Category	Clinical Skill Practice	Duration of Training	Minimum Cases for Hands on Practice	Training Centre
Physicians				
1. Physicians M.D.	* Management of ICCU	15 Days	10	<ul style="list-style-type: none"> * Sri. Jayadeva Institute of Cardiology, Bangalore * Wokhardt's Heart Hospital, Bangalore * Manipal Hospital, Manipal * St. Johns Hospital, Bangalore * Mallya Hospital, Bangalore
2. Physicians M.D.	* Endoscopy	10 Days	5	<ul style="list-style-type: none"> * Bowring & Lady Curzon Hospital, Bangalore * St. Johns Hospital, Bangalore
3. Physicians M.D.	* Management of Psychiatric Clinics & Mental Health Programme	1 Month	10	<ul style="list-style-type: none"> * NIMHANS, Bangalore * Victoria Hospital, Bangalore <p>Due to shortage of qualified persons, training is to be provided to the Physicians.</p>
4. Physicians M.D.	* Management of Critically Ill Patients	15 days	5	<ul style="list-style-type: none"> * AIIMS, Delhi * Jaslok Hospital, Bombay, * Grant Medical Hospital, Bombay * JIPMER, Pondichery
General Surgeons				
5. General Surgeons MS	* Management of Head Injuries	Two Weeks	10	<ul style="list-style-type: none"> * NIMHANS, Bangalore, * Manipal Hospital, Bangalore * CMC Hospital, Vellore
6. General Surgeons MS	* Management of Thoracic Injuries	Two Weeks	5	<ul style="list-style-type: none"> * S.D.S. Sanatorium, Bangalore * M.S. Ramiah Medical College Hospital, Bangalore
7. General Surgeons MS	* Management of Orthopaedic Emergencies	Two Weeks	10	<ul style="list-style-type: none"> * Victoria Hospital, Bangalore * St. Johns Hospital, Bangalore * J.J.M. Hospital, Davanagere * K.M.C. Hospital, Manipal
8. General Surgeons MS	* Training in Ultrasound Sonography	Two Weeks	20	<ul style="list-style-type: none"> * Victoria Hospital, Bangalore * Srinivasa Screening Centre, B'lore * St. Johns Hospital, Bangalore * St. Martha's Hospital, Bangalore
9. General Surgeons MS	* Management of Critically Ill Patients	15 Days		<ul style="list-style-type: none"> * A.I.M.S, Delhi * Jaslok Hospital, Bombay * JIPMER, Pondichery
Obstetricians & Gynaecologists				
10. Medical Officers, CHC & Taluka Hospitals	<ul style="list-style-type: none"> * Obstetrical Procedures * Emergency Surgery like Caesarean * MTP Training 	One Month	10	<ul style="list-style-type: none"> * Vani Vilas Hospital, Bangalore * Bowring & Lady Curzon Hospital, Bangalore * K.C. General Hospital, Bangalore * MTP Training may be provided under IPP-IX

Personnel Category	Clinical Skill Practice	Duration of Training	Minimum Cases for Hands on Practice	Training Centre
Obstetricians & Gynaecologists				
11. OBG Specialists MD or DGO	* Laproscopic Sterilisation	One Month	20	* Referral Hospital, Bangalore City Corporation
12. OBG Specialists MD or DGO	* Ultrasound Sonography	15 Days	20	* Victoria Hospital, Bangalore * Jubilee Nursing Home, Bangalore * Srinivasa Screening Centre, Bangalore * St. Johns Hospital, Bangalore * St. Martha's Hospital, Bangalore
13. OBG Specialists MD or DGO	* Neonatology * Care of New Born * Use of Incubators	15 Days	5	* Vani Vilas Hospital, Bangalore * St. Johns Hospital, Bangalore * St. Martha's Hospital, Bangalore
14. OBG Specialists MD or DGO	* Management of Critically Ill Patients	15 Days		* A.I.M.S, Delhi * Jaslok Hospital, Bombay * JIPMER, Pondichery
Paediatricians				
15. Paediatricians	* Management of Premature & Low Birth Weight Babies * Neonatal Intensive Care * Use of Incubators, Radiant Warmers, Phototherapy Units	Two Weeks	10	* Vani Vilas Hospital, Bangalore * St. Martha's Hospital, Bangalore
16. Paediatricians	* Resuscitation Procedures * Management of Birth Asphyxia * Birth Injuries * Jaundice * Convulsive Disorders	Two Weeks	15	* Vani Vilas Hospital, Bangalore * St. Martha's Hospital, Bangalore
Anaesthetists				
17. General Duty Medical Officers MBBS	* Administration of General Anaesthesia and Regional Anaesthesia for Routine Normal Cases	Six Months	10	* All Teaching Hospitals in Karnataka State including Private Medical College Hospitals
18. Anaesthetists MD or DA	* Recent Advances in Techniques and Use of Latest Drugs	One Week	6	* All Teaching Hospitals in Karnataka State including Private Medical College Hospitals

Personnel Category	Clinical Skill Practice	Duration of Training	Minimum Cases for Hands on Practice	Training Centre
Ophthalmologists				
19. Ophthalmologists MS or DOMS	* Cataract Surgery with I.O.L Implomentation * Keratoplasty	One Month	10	* Minto Ophthalmic Hospital, Bangalore * Lion's Eye Hospital, Bangalore * Narayana Netralaya, Bangalore
20. Ophthalmologists MS or DOMS	* Micro Surgery * Use of Operating Microscope	One Month	10	* Minto Ophthalmic Hospital, Bangalore * Lion's Eye Hospital, Bangalore * Narayana Netralaya, Bangalore
ENT Surgeons				
21. ENT Surgeons MS or DLO	* Bronchoscopy and Removal of Foreign Bodies	Three Weeks	5	* S.D.S. Sanatorium, Bangalore * St. Johns Hospital, Bangalore
22. ENT Surgeons MS or DLO	* Micro Surgery	Six Weeks	10	* Basavangudi E.N.T. Centre * Chinnammal Memorial Trust Hospital, under Dr. K.R.Ramalingam, Madras * K.E.M. Hospital, Bombay
Orthopaedicians				
23. Orthopaedic Surgeons MS or D.Ortho	* Management of Polytrauma Cases	Two Weeks	10	* Sanjay Gandhi Memorial Accident Complex & Rehabilitation Centre, Bangalore * Victoria Hospital, Bangalore * Manipal Hospital, Bangalore
24. Orthopaedic Surgeons MS or D.Ortho	* Practice in Implant Surgeries	Four Weeks	20	* Sanjay Gandhi Memorial Accident Complex & Rehabilitation Centre, Bangalore * Victoria Hospital, Bangalore * Manipal Hospital, Bangalore
Skin V.D				
26. Skin VD & Leprosy	* Recent Advances	15 days	5	All teaching Hospitals
Radiologists				
25. Radiologist MD or DMRD	* Ultrasound Sonography * Special Radiological Investigations * Spectrophotometry	One Month	50	* Victoria Hospital, Bangalore * Jubilee Nursing Home, Bangalore
TB				
27. TB Specialist	*Pulmonary Test	One Month	10	*PKTB Hospital, Mysore * SDS TB Hospital, Bangalore
Dentists				
28. Asst. Dental Surgeons BDS & MDS	* Management of Maxile Facial Injuries and Fractures	One Month	10	* Govt. Dental College, Bangalore * S.D.M. Dental College, Dharwad

Personnel Category	Clinical Skill Practice	Duration of Training	Minimum Cases for Hands on Practice	Training Centre
Dentists				
29. Asst. Dental Surgeons BDS & MDS	* Oral Cancer Detection * Biopsy & Excision of Small Lesions & Follow Up	One Month	10	* Kidwai Memorial Institute of Oncology
Staff Nurses				
30. Staff Nurses of CHCs/ Taluka/ District Hospitals	* ICCU Nursing Care	15 Days	10	* Sri Jayadeva Institute of Cardiology, Bangalore
31. Staff Nurses of CHCs/ Taluka/ District Hospitals	* Paediatric Nursing	15 Days	10	* Vani Vilas Hospital, Bangalore * Cheluvamba Hospital, Mysore
32. Staff Nurses of CHCs/ Taluka/ District Hospitals	* O.T Training	One Month	30	* Bowring & Lady Curzon Hospital, Bangalore * K.C.G. Hospital, Bangalore * General Hospital, Jayanagar, Bangalore
33. Staff Nurses of CHCs/ Taluka/ District Hospitals	* Psychiatry Nursing Training	15 Days	10	* NIMHANS, Bangalore
34. Staff Nurses of CHCs/ Taluka/ District Hospitals	Anaesthesia	One Month	5	All Teaching Hospitals in both Govt. and Private Sectors.
35. Staff Nurses of CHCs/ Taluka/ District Hospitals	Labour Ward Training (in use of Foetal and Maternal Monitors)	One Month	10	All Teaching & Hospitals Private Hi-tech Hospitals
36. Staff Nurses of CHCs/ Taluka/ District Hospitals	Laproscopy	15 Days	10	All Teaching Hospitals in both Govt. and Private Sectors.
37. Staff Nurses of CHCs/ Taluka/ District Hospitals	Nursing Training in Management of Poly Trauma cases and usage of Orthopaedic Appliances including Splints	One Month	10	* Sanjay Gandhi Memorial Accident Complex & Rehabilitation Centre, Bangalore * KMC Hospital, Manipal * St. Johns Hospital, Bangalore * KLE Society Hospital, Belgaum * J.J.M. Medical College Hospital, Davanagere

Personnel Category	Clinical Skill Practice	Duration of Training	Minimum Cases for Hands on Practice	Training Centre
Laboratory Technicians				
38. Lab Technicians	* Procedures of Histo-Pathology	15 Days	30	* All Hospitals Attached to Teaching Colleges Including Private Medical College Hospitals
39. Lab Technicians	* Procedures of Micro-Biology	15 Days	30	* All Hospitals Attached to Teaching Colleges Including Private Medical College Hospitals
40. Lab Technicians	* Procedures of Biochemistry	15 Days	30	* All Hospitals Attached to Teaching Colleges Including Private Medical College Hospitals
41. Lab Technicians	* Procedures of Blood Bank	15 Days	30	* All Hospitals Attached to Teaching Colleges Including Private Medical College Hospitals

Training in Hospital Administration

Formal training in hospital administration is essential for efficient management of the Health Care System. It is proposed to organise a one week training course for Civil Surgeons, Assistant Surgeons and Nursing Supervisors in the following subjects. The course content will be developed by a team of specialists drawn from the Directorate and Management Institutes specialising in Hospital Administration. The course content is presented in Table 12.1.1.3.

The training will be imparted in each district at the hospital attached to teaching institution or at the district hospital if no teaching institution is located in the district.

Table 12.1.1.3 Training in Hospital Administration: Course Content

Facilities	Assessment of adequacy and efficiency of existing facilities — building, plant and equipment planning for improvement in quality and utilisation
Personnel	Recruitment procedures, rules & regulations, supervisory techniques, disciplinary procedures, motivation, team building, group dynamics, training and development.
Maintenance	Planning for preventive maintenance. Monitoring use and abuse. Maintenance of buildings, Housekeeping
Drugs & Supplies	Procurement planning, inventory management, storage considerations.
Budgeting & Accounting	Accounting system — procedures and practices, budgeting, monitoring and control of expenditures, internal checks, role of auditing, income generation.
Information	Statistics to be collected for use by Directorate and for hospital management. Use of information to improve hospital management. importance of registration and medical records. Methods of collection, storage and processing.
General	Support to primary health care, relationship with community, quality assurance, communication skills

Facilities for Training Activity

In each district one hospital (preferably a hospital attached to teaching institution where it exists) will be equipped to impart training. Each centre will have:

1. A lecture cum conference room which can accommodate a batch of 25 trainees,
2. A Library with reading room,
3. Books and Journals, and
4. Teaching aids like overhead projector, slide projector, video projector, clinical mannequins, teaching aids etc.

12.1.2. Training Capacity & Cost

Looking at the number of institutions available for training on different subjects and the feasibility of releasing staff for training, the number that can be trained annually and the associated costs are presented in Table 12.1.2.1.

Table 12.1.2.1 Estimated Annual Cost of Training

Specialist	To be Trained in	Trainees / Year	Annual Cost Thousand Rs.
1. Physicians M.D.	Management of ICCU	40	180
2. Physicians M.D.	Endoscopy	24	72
3. Physicians M.D.	Management of Psychiatric Clinics & Mental Health Programme	12	108
4. Physicians M.D.	Management of Critically Ill Patients	32	576
5. General Surgeons MS	Management of Head Injuries	24	108
6. General Surgeons MS	Management of Thoracic Injuries	16	72
7. General Surgeons MS	Management of Orthopaedic Emergencies	32	400
8. General Surgeons MS	Training in Ultrasound sonography	32	400
9. General Surgeons MS	Management of Critically ill patients	32	900
10. Medical Officers, CHC & Taluka Hospitals	Obstetrical Procedures Emergency Surgery like Caesarean MTP Training	24	120
11. OBG Specialists MD or DGO	Laposcopic Sterilisation	16	80
12. OBG Specialists MD or DGO	Ultrasound Sonography	32	160
13. OBG Specialists MD or DGO	Neo-natology Care of New Born Use of Incubators	32	160
14. OBG Specialists MD or DGO	Management of Critically Ill Patients	24	400
15. Paediatricians	Management of Premature & Low Birth Weight Babies Neonatal Intensive Care Use of Incubators, Radiant Warmers, Phototherapy Units	32	192
16. Paediatricians	Resuciation Procedures Management of: Birth Asphyxia, Birth Injuries, Jaundice, Convulsive Disorders	32	192

Specialist	To be Trained in	Trainee s/ Year	Annual Cost Thousand Rs.
17. General Duty Medical Officers MBBS	Administration of General Anaesthesia and Regional Anaesthesia for Routine Normal Cases	16	864
18. Anaesthetists MD or DA	Recent Advances in Techniques and Use of Latest Drugs	48	120
19. Ophthalmologists MS or DOMS	Cataract Surgery with I.O.L Implomentation Keratoplasty	24	240
20. Ophthalmologists MS or DOMS	Micro Surgery Use of Operating Microscope	24	240
21. ENT Surgeons MS or DLO	Bronchoscopy and Removal of Foreign Bodies	16	112
22. ENT Surgeons MS or DLO	Micro Surgery	12	180
23. Orthopaedic Surgeons: MS or D.Ortho	Management of Polytrauma Cases	24	120
24. Orthopaedic Surgeons: MS or D.Ortho	Practice in Implant Surgeries	12	60
25. Radiologist MD or DMRD	Ultrasound Sonography Special Radiological Investigations spectrophotometry	24	240
26. Skin VD & Leprosy	Recent Advances	32	160
27. TB Specialist	Pulmonary Test	24	240
28. Asst. Dental Surgeons BDS & MDS	Management of Maxile Facial Injuries and Fractures	24	240
29. Asst. Dental Surgeons BDS & MDS	Oral Cancer Detection Biopsy & Excision of Small Lesions & Follow Up	24	240
30. Staff Nurses of all Hospitals	ICCU Nursing Care	24	36
31. Staff Nurses of all Hospitals	Paediatric Nursing	48	72
32. Staff Nurses of all Hospitals	O.T Training	72	216
33. Staff Nurses of all Hospitals	Psychiatry Nursing Training	24	36
34. Staff Nurses of all Hospitals	Anaesthesia	48	72
35. Staff Nurses of all Hospitals	Labour Ward Training (in use of Foetal and Maternal Monitors	48	36
36. Staff Nurses of all Hospitals	Laproscopy	48	72
37 Staff Nurses of all Hospitals	Management of Poly Trauma	48	96
38. Lab Technicians	Procedures of Histo-Pathology	64	96
39. Lab Technicians	Procedures of Micro-Biology	64	96
40. Lab Technicians	Procedures of Biochemistry	64	96
41. Lab Technicians	Procedures of Blood Bank	64	96
42. Management	Hospital Administration	400	1200
		Total	9396

The following equipment will be provided for training:

Item	Qty	Rate Thousand Rs.	Cost Million Rs.
District Hospitals & Teaching Institutions			
Over head Projector, Slide Projector	27	35	0.945
VCR/TV	27	50	1.350
Video Projector	27	250	6.750
Teaching Institutions			
Video Camera	4	65	0.260
	Total Cost		9.305

12.2. Development of Clinical Protocols or Standards

A Working Group has been set up to document clinical protocols in operation in the hospitals at various levels.

12.3. Provision of Equipment and Furniture for Hospitals

Norms have been developed for provision of equipment and furniture for hospitals. These norms are presented in Annexure 3. An inventory of equipment and furniture available at each hospital is being assessed with a view to determine the shortage and plan for procurement.

12.3.1 Training in Use of Equipment

The Department of Health and Family Welfare proposes to set up a full-fledged equipment maintenance wing at the Directorate level as well as at district levels. Maintenance of sophisticated equipment will be contracted out to the manufacturer of the equipment or his authorised service centre. All other equipment will be maintained by in-house maintenance wing. However, it is essential for the actual users to be fully acquainted with the use and operation of the equipment so that equipment is not damaged due to mishandling. They should also be aware of simple maintenance checks, replacement of fuse etc. to ensure minimum down time. It is planned to include such training wherever feasible, into the clinical training programme. For other equipment, training will be imparted at the nearest Taluka or District hospital where such equipment is available.

Table 12.3.1.1 Training in Use of Equipment

Doctors	Doctors & Nurses	Nurses & Operating Theatre Assistants
Audiometer	BP instrument	Operating Table, (Hydraulic)
Endoscope (fiberoptic)		Autoclave HP (horizontal & vertical)
Operating Microscope	ECG Machine	Autoclave (electrical)
Cryosurgery (basic)	Cardiac Monitor	Shadow less Lamp OT (mobile)
Cryosurgery (deluxe)	Defibrillator (with recorder)	OT Ceiling Lamps
Ventilator (adult)	Phototherapy Unit	Focusing Lights OT Mobile
Boyles Apparatus with flow tech	Foetal Monitor	Suction (high vacuum MTP)
Boyles Apparatus without flow tech	Radiant Heater (4 kw)	Suction Apparatus (Electrical)
Pulse Oximeter	S-Wave Electro-Physic Unit	Suction Apparatus (foot operated)
Ophthalmoscope	Emergency Resuscitation Kit	Vacuum Extractor
Slit Lamp (with table)	Sigmoidoscope (rigid adult)	Instrument Sterilizer
Retinoscope	Acute Medical Care Equipment	Electro-Surgery Machine
Perimeter	Oxygen Cylinder	Electric Cautery Set (gynaec)
Pulse Air Tonometer	Nitrous Oxide Cylinder	Automist (OT fumigator)
Dental Unit	Gas Regulator & Flow meters	Orthopaedic Appliances (including splints)
Autoscope	Ambu Bag	Weighing Scale (adult)
Universal Bone Drill	Oxygen Masks (with regulators)	Weighing Scale (infant)
Exercise Tolerance Test Machine	Laryngoscope (Adult & Child)	Infra-red Lamp
	Foetal & Maternal Monitor	Emergency Lamp
		Fire Extinguishers

12.4. Maintenance of Equipment

The districts have been classified into four categories on the basis of the number and size of hospitals. Bangalore Urban and Rural Districts are treated as one and fall into A category. Looking at the large number of big hospitals, Bangalore requires three District Hospital Engineering Units. Three Districts, Chitradurga, Dharwad and Mysore fall under group B, and each of these districts needs two District Hospital Engineering Units. The District Hospital Engineering Units in these districts will be placed in different large Hospitals. Eight Districts fall under group C and seven under Group D. Table 12.4.1 gives the details of the hospitals to be maintained by the Unit in each district. The general hospitals and hospitals for ophthalmic diseases, tuberculosis leprosy and mental problems which are not included in the project for renovation/extension are included for maintenance coverage.

Table 12.4.1. Number of Hospitals and Beds by District

	Category	30 Bed Hospitals		50 Bed Hospitals		100 Bed Hospitals		Hospitals with ≥ 200 Beds		All Hospitals	
		No.	Beds	No.	Beds	No.	Beds	No.	Beds	No.	Beds
Bangalore	A	3	90	5	250	5	548	9	4029	22	4917
Belgaum	C	6	180	6	300	0	0	1	740	13	1220
Bellary	C	0	0	7	350	1	100	3	1010	11	1460
Bidar	D	1	30	3	150	1	100	1	400	6	680
Bijapur	C	9	270	6	300	3	360	1	440	19	1370
Chikmagalur	D	2	60	3	156	3	300	1	300	9	816
Chitradurga	B	3	90	6	300	2	200	2	1250	13	1840
Dakshina	C	5	150	2	100	6	620	2	955	15	1825
Dharmad	B	13	390	7	362	2	200	3	1365	25	2317
Gulbarga	C	8	240	8	400	1	100	1	751	18	1491
Hassan	C	5	150	3	150	3	350	1	500	12	1150
Kodagu	D	4	120	2	100	1	112	3	650	10	982
Kolar	C	4	114	6	300	4	460	2	664	16	1538
Mandya	D	4	120	2	100	2	248	1	400	9	868
Mysore	B	6	180	6	300	5	550	3	1920	20	2950
Rachur	D	5	150	5	250	2	200	1	400	13	1000
Shimoga	C	3	90	3	150	2	200	1	500	9	940
Tumkur	D	2	60	7	350	2	200	1	400	12	1010
Uttara Kannada	D	5	150	6	300	1	100	1	400	13	950
Total		88	2634	93	4668	46	4948	38	17074	265	29324

12.4.1. Staffing

The staffing of each of the Hospital Engineering Unit is presented in Table 12.4.1.1

Table 12.4.1.1 Staff by Category of District Health Engineering Unit

	Salary Grade	HQ	Central Workshop	Category			
				A No. 3	B No. 6	C No. 8	D No. 7
Joint Director	3825-5825	1	-	-	-	-	-
Dy. Director	3300-5300	3	-	-	-	-	-
Engineer Grade I	3170-5300	-	1	1	-	-	-
Engineer Grade II	2600-4575	-	2	2	1	1	-
Engineer Grade III	2375-4450	-	6	2	2	1	1
Technicians	1400-2675	-	10	10	7	7	7
Office Superintendent	1720-3300	1	1	1	1		
FDA	1280-2375	4	2	1	1	1	1
SDA	1040-1900	4	2	2	2	2	1
Driver	1040-1900	2	1	1	1	1	1
Group D	840-1520	3	3	2	2	2	2
Annual Salaries/ Unit Thousand Rs.		1077	1792	1342	966	806	670

12.4.2. Training of Maintenance Staff

Even though attempts to recruit trained engineers and technicians will be made, it would be necessary to train them and as well as those engineers and technicians who are currently in-service on different types of equipment. In all 65 engineers and 182 technicians have to be trained. Training of staff in maintenance will be made the responsibility of the manufactures/suppliers at the time of purchase of equipment.

12.4.3. Physical Facilities

The physical facilities along with costs for establishing the units are presented in Table 12.4.3.1 below.

Table 12.4.3.1 Physical Facilities and Costs

	Cost per Unit in Million Rs.				
	Central Workshop	A No.: 3	B No.:6	C No.:8	D No.:7
Cost of Physical Space: Civil Works	1.90	1.14	1.14	0.76	0.76
Mechanical Engineering Facilities: fabrication, machining, fitting, etc.	1.00	0.80	0.50	0.40	0.25
Test equipment & tools: Oscilloscopes, regulated power supplies, tools, etc.	1.00	0.50	0.50	0.40	0.35
Computer	0.20	0.20	0.20	0.15	0.15
Furniture	0.22	0.19	0.19	0.15	0.15
Library Books/ Technical Manuals	0.30	0.20	0.20	0.15	0.15
Total cost per unit	4.62	3.03	2.73	2.01	1.81

The capital cost of setting up the maintenance facility is estimated at Rs. 23.56 million for civil works, Rs. 53.48 million for machinery and equipment and Rs. 8.75 million for vehicles.

12.4.4. Procedures for Maintenance and Repair

At an early stage of setting up of the unit, an inventory will be taken of all medical equipment and instrumentation through out the system. The list thus obtained will become the basis to determine the requirements for services. A format for the inventory records and for the maintenance and repair of equipment will be also prepared.

The maintenance and repair unit will maintain a card for each item of equipment or instrument. It will contain the complete history of the item from the date of purchase up to its ultimate disposal. The total purchase cost, records of maintenance and repair operations with cost, and the estimation of the probable life expectancy will be noted in the card.

The equipment maintenance card will form the key reference for all the service functions. The maintenance and repair staff will be given guidelines for maintenance of

equipment. The standard guidelines will include the method of recording the work undertaken, the materials to be used and explain the basic principle of selection, inspection, preventive maintenance and repairs. A Standards Guide will be supplemented by Procedure Manuals. These manuals would suggest the required frequency of preventive maintenance procedures, calibration instructions, trouble shooting methods and repair procedures.

Requisition forms for repair services will be made available to all hospitals. At the time of failure or apparent damage, a preliminary inspection will be carried out by the in-house technical staff and if they are unable to carry out the repairs, the next level unit may be informed which will then take up the work. The engineering unit will decide whether the repair will be attempted “on site”, in its maintenance facility, or by an outside agency. In the latter instance, the engineering department will be responsible for issuing instructions for repairs and transport procedures. A “work order” will be prepared and directed to the appropriate staff. On the completion of the repair, the details of the services rendered will be transferred from the work order to the equipment record card.

12.5. Drugs and Hospital Supplies

12.5.1 Norms for Drug Budget

The Working Committee for Drugs and Supplies had examined the present provision for Drugs and Chemicals and found it to be inadequate. Instead of allocating budget on the basis of population of the catchment area as is done at present it has recommended that provision be made in the budget on the basis of beds at the following rates:

Table 12.5.1.1 Norms for Budget for Drugs and Chemicals

Hospital Type and Bed Strength of Hospital	Amount per Bed in Thousand Rs.	
	Existing	Proposed
CHC 30 Beds	6,667	7,500
Gen. Hosp. 50 Beds	6,000	9,000
Gen. Hosp. 100 Beds	9,000	10,500
Gen. Hosp. ≥250	9,000	12,000

12.5.2 Essential Drug List

The Directorate of Health and Family Welfare, Karnataka has prepared, based on WHO guidelines, an essential drug list for 30 to 100 bed hospitals. The Directorate of Medical Education has a standard list of drugs for use in hospitals attached to medical colleges which will be adopted for all district hospitals. The two lists have been merged and presented in Annexure 4 as part of Standard Drug Formulary of the State.

12.6. Blood Safety

The few blood banks which exist are ill equipped both in terms of physical space and equipment for testing, collection and storage of blood. Separate buildings for blood banks are under construction in Bidar, Bijapur, Dharwad, Kolar and Tumkur districts. It is planned to construct buildings with plinth area of 100 sq. m. for blood bank in 14 more districts - Bangalore, Belgaum, Chikmagalur, Chitradurga, Dakshina Kannada, Gulbarga, Hassan, Kodagu, Mandya, Mysore, Raichur, Shimoga and Uttara Kannada.

Besides the District Hospitals 14 Sub-Divisional hospitals which have been selected for upgrading of casualty wards will be provided with blood banks. The Sub-Divisional Hospitals selected in a district is far from the District Hospital. The hospitals are located at the following places:

District	Places
Bellary	Hospet
Bijapur	Bagalkot
Chitradurga	Davanagere, Hiriyr
Dakshina Kannada	Udupi, Puttur
Dharwad	Gadag, Haveri
Gulbarga	Yadgir
Kodagu	Virajpet
Mysore	Kollegal
Raichur	Lingsugur
Shimoga	Sagar
Uttara Kannada	Sirsi

The cost of building for a blood bank is estimated at Rs. 410,000 and the costs of furniture and equipment are estimated at Rs. 81,650 and Rs. 552,650 respectively. List of furniture equipment required for each blood bank is presented in Annexure 5.

12.7. Quality Assurance (QA)

It is proposed that a systematic programme of quality assurance will be developed to cover aspects of clinical quality, user satisfaction and management of resources. This will help to ensure that the other project interventions such as physical resources, implementation of staffing and equipment norms, training, and strengthening of management, etc., are actually translated into better quality of care. Such a system will empower managers, clinicians and technicians to monitor the quality of care provided by their own hospitals and assist in instituting rapid remedial measures wherever shortfalls in quality are noticed. It is proposed to set up a Working Group to plan and implement QA programme.

12.7.1 Objective and Scope

The objective of the QA programme will be to continuously improve the quality of care in all the hospitals by instituting on-going monitoring systems for identifying and investigating shortfalls in quality and implementing remedial measures to address these shortfalls.

Quality of care has many aspects. These include: human aspects of caring, courtesy, comfort, etc.; technical aspects such as effectiveness and safety of care; and managerial aspects such as utilisation of resources, availability of services, timeliness, cleanliness etc. To implement a practicable programme of QA the Project Management will have to clearly define the aspects of care for monitoring and prioritise them. Considering the dearth of expertise, the programme will initially focus on a few selected aspects of quality and services. The programme will be initially taken up in the districts of Hassan and Chitradurga.

12.7.2. Activity Range

The QA Working Group will make recommendations to the Project Management on which aspects of quality are to be initially included. The following list will be considered in making the selection:

- a) Technical Quality is measured by effectiveness and safety of clinical care.
- b) Patient and community satisfaction are assessed in terms of courtesy and care shown and comfort and information provided.
- c) Managerial quality is reflected in cleanliness, timeliness of services and proper utilisation of resources.

The Working Group will make recommendations on the levels of services that should be included in the QA programme. For example, whether recommendations on the level of services should include only those related to Taluka hospitals or, all hospitals; and whether it should cover in-patient care, out-patient care, or both. It will also suggest phasing of the programme including aspects to cover in each phase, and proposed timing for the introduction of each phase.

12.7.3 Conducive Climate Building

The Project Management will need to create a suitable conducive climate for the successful implementation of the QA programme. For this purpose it will undertake the following steps:

- 1 Identification of opinion leaders from different groups concerned about the quality of hospital services in the public sector.

2. Evolving a consensus among opinion leaders to set standards for quality, and to suggest aspects of quality that should be monitored.

Since this process of consensus building is a slow and iterative one, it has been proposed to plan and budget for these activities throughout the life of the project.

12.7.4. Programme Planning and Organisational Arrangements

As quality should be the concern of all service providers in hospitals, QA activities would be implemented by the existing staff in the organisation. The development of QA will therefore be a "learning-by-doing" process. However, a local consultant will be engaged to provide specialised technical inputs required for the programme.

The Joint Director (Medical) in the Project Management group will constitute the QA Working Group. The Deputy Director (Training & Referral) will look after the QA programme. The Joint Director (Medical) will approve planned activities and monitor progress.

The RMO in District Hospitals and the designated Doctor in other hospitals will be designated QA co-ordinators in each participating hospital. The QA co-ordinator will be responsible for providing technical support and training for hospital groups executing the quality improvement activities.

12.7.5 Quality Assessment

The first stage of programme development will establish procedures for quality assessment. This will involve periodic monitoring to assess the quality of selected aspects of care provided in hospitals.

The six steps for setting up quality assessment for the selected areas of focus are:

1. identifying suitable indicators for monitoring quality;
2. setting of acceptable standards;
3. developing and testing methods of data collection, e.g. routine records, interviews with user groups, etc.;
4. reviewing data collected, indicators and proposed standards;
5. establishing regular on-going methods of data generation; and,
6. establishing procedures for reviewing the data and identifying hospitals which have shortfalls in quality.

12.7.6. Quality Improvement

It is proposed to develop such Quality Improvement (QI) activities which can rapidly remedy shortfalls in quality. For this purpose it will be necessary to develop

skills and capacity within the participating hospitals to design and implement such focused and rapid problem solving interventions. This activity will be integrated with Management Training. Priority for such training will be given to the hospital QA co-ordinators.

When a hospital is identified by the monitoring system as having a shortfall in quality, a QI group will be formed. The QI group will consist of members of the staff responsible for the provision of care in the area that has as a shortfall in quality. The QI group will:

- (a) investigate factors contributing to shortfalls in quality;
- (b) develop strategies for remedying shortfalls in quality and prepare an implementation plan;
- (c) submit a report of the investigation and the implementation plan to the Project Management; and,
- (d) implement the plan.

The next cycle of periodic monitoring will demonstrate whether the activities of the QI group have been successful in improving quality.

12.7.7. Support Mechanisms

In support of the QA strategy, the project will provide training, support materials, such as manuals and guidelines, consultant support, workshops, seminars, and study tours to "Centres of excellence", including to private hospitals.

An independent Committee will be set up to evaluate the QA programme in a hospital. If the Committee certifies that the programme is successful, awards will be given to the participating staff members.

Chapter 13

Improving Referral Mechanism and Linkages with Primary & Tertiary Level

13.1. Existing Situation

At present, the referral system in the State does not function effectively. It is common practice to notice the out-patient services in secondary and tertiary level hospitals overburdened with patients suffering from ailments which could have been easily handled at primary and secondary levels. This is due to the following reasons:

- over-loading of hospitals with self-referrals;
- lack of confidence in lower-level facilities because of perceived low quality of care;
- lack of organisational and management links between hospitals at various levels.

The lowest tier of health care in the State comprises of the primary health centres (those that are yet to be upgraded are called primary health units). There are currently 1357 primary health centres and 621 primary health units functioning in the State. Of these 269 Centres have two posts of Medical Officers, one male and one female. The remaining 1088 PHCs are managed by a single Medical Officer. These Centres attend to all basic preventive and curative services, provide MCH and FW services, and implement all the National and State Health Programmes.

The next tier is the Community Health Centre. (CHC). There are 186 CHCs in the State with a bed strength of about 30, each CHC covering a population of 1 to 1.5 lakhs. Each CHC is posted with 3 Medical Officers, with 3 major specialities out of Medicine, Surgery, OBG, and, Dental, along with pharmacists, X-Ray lab technicians, some minimal nursing staff, ward staff, and ministerial staff for office use. CHCs are expected to be the first referral unit, attend to curative services, do minor operations, and also implement national health and family welfare programmes.

Above the CHCs are the Taluka level hospitals with 50-100 beds. A large number of CHCs are also functioning at the Taluka level, with 30 beds. There are 45 hospitals at the Taluka level with a bed strength of 50-100. These are managed by four doctors with different specialities and are supported by one Dental Surgeon. They provide curative services in a more advanced form.

Above the Taluka and sub-district are the District hospitals with a bed strength of 250 beds and upwards. They have all the specialities, with improved laboratory and diagnostic facilities.

There is at present no proper referral system in place. Once a patient is received at a particular institution, the doctor examines the patient and decides whether he/she can be managed there itself, or needs a referral to a higher level facility. There is complete lack of co-ordination among the peripheral institutions, on the one hand, and between the institutions and district hospitals, on the other. There are no guidelines or procedures that govern the peripheral institutions and the higher-level hospitals in a referral chain. No written or unwritten conventions exist as to what types of conditions are to be treated, from where and when. There is also no prioritisation of referred cases, either from private or government institutions. Lower-level facilities lack even basic facilities, equipment and major specialists, leading to a large number of self-referrals and overcrowding in the higher level facilities.

Another major problem is the lack of rationalisation in filling up the posts. Often enough one is witness to peculiar situations of too many specialists of one kind, with a complete lack of other kinds in an institution. It is not unusual to find surplus OBG specialists in a District hospital, and none at all at the Taluka hospitals which receive a large number of cases requiring emergency obstetric care. Quite often specialists are placed at PHCs and non-specialists in the higher-level institutions. These situations make any meaningful referral system difficult to implement.

13.2. Ideal Referral System

Conceptually a multi-tier system which combines preventive curative and specialised care is efficient when it provides patients access to levels of care that are appropriate to their health needs with a minimum of inconvenience and delay. It works best when the lowest tier is easily accessible to the community and provides the bulk of the preventive care as well as curative care services for common illnesses. Patients with more complex problems are identified in a timely and systematic manner and referred to the appropriate higher level. Each successive level provides services that are more complex and therefore more expensive. In such a system, the higher tier provides technical leadership and support for the lower tiers, and the community has confidence in the quality of care provided at each tier and the patients understand they will be in accordance with patient needs.

13.3. Recommendations of the Working Group

A Working Group consisting of clinicians from teaching institutions, major hospitals and the Directorate was set up to examine the existing referral system and suggest measures for strengthening it. The members of the Group were divided into two sub-groups and each sub-group visited a few PHCs, CHCs, Taluka and District hospitals to note the inadequacies in the system and discuss with the doctors the steps to be taken for developing and implementing an effective referral system. After returning from their field visits, the two sub-groups met together and arrived at the following conclusions:

- No formal system is practised at present;
- There is high patient load at the District and tertiary level hospitals,
- The facilities available for even basic investigations, is inadequate at some of the primary as well as the secondary hospitals.
- There is duplication of investigations and treatment due to lack of a proper referral system.
- No uniformity in conditions treated at different levels.

The Working group also examined the recommendations made in the Andhra Pradesh First Referral Health System Project Document. The deliberations of the Working Group were a follow up of the Workshop on Norms for Hospital Services and Facilities conducted on February 28-March 1, 1995. This Workshop has laid down detailed guidelines on the conditions and procedures to be followed separately for the Medical, Surgical and Diagnostic services at the different levels of health care beginning from the PHCs.

13.4. Designing A Credible and Effective Referral System

Based on the Recommendations made by the Workshop and the guidelines evolved by the Working Group on the referral system it is proposed to establish a credible and an effective Referral System in the State. Such a system should provide patients access to levels of health care facilities that are appropriate for their need at minimum cost and delay. Continuity of care should include follow up and long term therapy and rehabilitation. The effectiveness of the referral system requires that:

- services to be provided at each level should be defined;
- services should be of adequate quality to inspire confidence among patients that they will be treated in an effective manner at that level.
- patients and the community must have the confidence that if the need arises, the patients will be properly referred and promptly transported to higher level of health care.
- the public is aware about the type of services available at each level of the health system; and
- procedures should be followed to ensure that patients do not skip the lower levels at which they could be effectively treated.

In the Project clinical skills, equipment and support services at each level of secondary level care will be upgraded and updated in accordance with the norms accepted in the Report on Norms based on the Workshop. The referral system will be strengthened by strengthening management; implementing referral protocols that specify the 'what', 'when' and 'how' of referrals; clinical management protocols that specify the essential processes of clinical management that should be implemented by staff who manage common conditions without the direct supervision of relevant specialists; and establishing an incentive system for users.

The following steps will be taken to strengthen the management of the referral system:

1. New Administrative directives;
2. Systematic Dissemination of Information on the Referral System.

13.4.1. New Administrative Directives

Based on the recommendations of the Working group it is proposed that new administrative directives that will specify procedures to make the system effective and acceptable to the community be issued to all institutions. The directives will provide guidelines for:

1. ensuring that referrals are made to the nearest properly equipped referral centre to provide treatment at the earliest, rather than the hospital to which the referring hospital is administratively linked;
2. transportation facilities for the referral of critically ill patient along with results of laboratory investigations, diagnosis and treatment provided by the referring hospital, and for the referral of poor and disadvantaged patients;
3. ensuring that all possible measures are taken to stabilise the patient before referral;
4. avoiding unnecessary delays in the receiving hospitals by, for example, publicising information on clinic hours, laboratory hours, X-Ray hours, giving priority to referred cases, simplifying admission procedures, etc.
5. maintaining registers or records at both the referring hospitals and the receiving hospitals. This information will facilitate the monitoring and evaluation of the referral system in terms of the number of cases, purpose of referral, destination or source of referral, etc.;
6. issuing guidelines in respect of referrals from private sector;
7. The District Surgeon will review once a month, the working of referral system and also visit the institutions each quarter for inspection.
8. The referral hospital will attend to the referred patients on top priority.

13.4.2. Systematic dissemination of information

Systematic dissemination of information about the referral system will be targeted to personnel in public sector health care facilities and to the public. A plan would be prepared within the first year of the project for both the initial dissemination of information and for periodic updating. The issues that will be considered in developing the information plan are:

- target groups, such as District and Taluka level hospitals, PHC and sub-centre staff, tertiary hospitals, medical colleges, practitioners in the private sector and public sector.
- communication media and channels to be used, such as a technical manual, leaflets, pamphlets, administrative directives, meetings and briefings for medical staff, community leaders and other health related personnel

13.5. Referral Protocols

Referral Protocols are also being developed as a pre-project activity by the same Working Group of senior clinical specialists. These protocols will be based on the norms already developed and will specify:

1. Types of conditions that should be referred either for investigation or treatment at higher levels for each speciality.
2. When and how to refer: This will include procedures may be followed before sending the patient to a higher level hospital and guidelines specifying essential information that should accompany the patient. The information should be sufficient to ensure continuity in patient care, but not be too burdensome on the staff.
3. Counsel the patient and his attendants before referral. Examples of topics to be included are: purpose of referral, how the referral will benefit the patient, etc. Information may also be provided on the location of the referral hospital and when to go, and what precautions or preparations to make before going.

This work is also being co-ordinated by the Directorate, and it is expected that the protocols will be printed and distributed during the first year of the project.

13.6. Clinical Management Protocols :

Clinical management protocols will also be developed as a pre-project activity by the same Working Group. The work is being co-ordinated by the Directorate. The clinical management protocols are primarily intended to provide guidelines and standards for management of common conditions by doctors who do not have post-graduate qualifications in a particular speciality. In particular, the protocols will be applicable in community hospitals, in various facilities at the primary health care level, and in other hospitals where the doctor is not working under the direct supervision of a specialist.

The main Working Group will form where necessary sub-groups for the following specialities : General Medicine; Obstetrics and Gynaecology; Paediatrics; Surgery, Orthopaedics, ENT, Ophthalmology, Dentistry; Anaesthesia; and Diagnostic Specialities (pathology, biochemistry, radiology).

Protocols will be developed for all common conditions (based on epidemiological data) that are to be managed at community hospitals. Protocols for most of the common conditions are expected to be printed and distributed during the first year of the project.

13.7. Installing of Referral System

In order to install a credible referral system, the Government and the Directorate of Health will, by the first year of the project :

- establish a District Referral Committee; and
- establish training and out-reach activities for primary care facilities

The members of the District Referral Committee will include :

District Surgeon (chairperson)
District Health and Family Welfare Officer
Medical Superintendents of the sub-District Hospitals
Taluka Medical Officers.
Superintendent of teaching hospital if available at headquarters

The functions of the District Referral Committee will include :

Preparing a zoning system: The zoning system will link identified community hospitals, community health centres and primary health centres with particular Taluka or district hospital for the purposes of

- (a) training and consultant out-reach visits;
- (b) as preferred referral sites; and
- (c) as the source for emergency ambulance services for critically ill patients.

Monitoring the referral system: Identifying and resolving problems will be done by regularly by obtaining and using the data from referral system. The Committee will also seek feedback from primary care staff, hospital staff and the community on problems experienced during referral.

Mobilising transport: The committee will liaise with NGOs and other government agencies to organise procedures to mobilise transport for referred patients.

Co-ordinating programs for technical support: Technical support will include visits by consultants to community hospitals, community health centres and primary health centres for the purpose of providing consultant services and on-the-job training as well as co-ordinating in-service training at referral centres.

Role of Specialist in Hospitals: Avenues for enhancing the role of hospital consultants in strengthening primary care programs such as safe motherhood, child survival, etc. will be explored.

Training and out-reach activities: Primary care facilities and community hospitals will be zoned and an identified Sub-District or District Hospital will be made responsible for providing technical support for each zone. The referral hospital will provide technical support through:

- a) dissemination of the Technical Manual to Primary Health Centres (PHC) and briefing of PHC and Taluka Hospital staff on the use of the Manual;
- b) clinical attachments for PHC and Taluka Hospital staff for training in specific clinical skills;
- c) week-end courses;
- d) regular meetings to discuss problems in clinical management.
- e) periodic circulation of relevant literature by the Directorate.
- f) out-reach visits to PHCs and CHCs by consultants from District hospitals for providing on-the spot consultation for selected cases, and practical demonstration of selected management techniques.

The District Surgeon will be responsible for co-ordinating the outreach visits by consultants. This will include transport arrangements and a regular schedule of visits by consultants from different specialities to Community Hospitals and PHCs. The plans and out-reach visit schedules will be presented to the District Referral Committee for approval and support.

The Directorate will prepare Annual Plans for Technical Support and these plans will incorporate the District Plans for training and out-reach visits. The Directorate will co-ordinate and monitor implementation of the plans.

13.8. Implementation Schedule

While the various protocols are expected to be finalised in the first year of the Project, the Working Group has recommended that the referral mechanism described above will be initially put into place in the two districts of Chitradurga and Hassan. These districts are also being taken up for introducing the Quality Assurance Programme. With the physical facilities also having been put into place and the necessary training imparted; an improved and effective Referral System will have been established by the end of the third year.

Chapter 14

Improving Access and Equity to Disadvantaged Sections

14.1. The Disadvantaged Sections

14.1.1. Scheduled Castes and Tribes

The Scheduled Caste and Scheduled Tribe population of Karnataka is 7.37 million and 1.92 million respectively as per the 1991 census which constitutes 16.38 percent and 4.26 percent of the total State population. Around 78 percent of SC/ST population lives in rural areas. The rural SC/ST population in 1995 is estimated at 7.65 million.

A large number of socio-cultural, historical and economic factors have contributed to making these two the most disadvantaged sections of the population. In the post independence period a large number of SC/ST families have been directly assisted under various anti-poverty Programmes. However, evaluations made by the implementing departments show that even amongst families directly assisted, about 35 percent of them relapsed into poverty for one reason or the other. The Department of Social Welfare is currently undertaking a State-wide survey to assess the number of SC/ST families under the poverty line.

Table 14.1.1.1 below gives the per capita monthly expenditure among SC/ST households, which shows the significant divide between SC/ST families and the rest of the Population.

Table 14.1.1.1: Per Capita Monthly Expenditure. (Rupees)

	ST	SC	Others	All
Rural	130	112	159	150
Urban	170	178	230	223

This economic divide is compounded by socio-cultural factors. It is against background that the Scheduled Castes and Tribes have been provided constitutional guarantees, and a large number of anti-poverty Programmes have also been designed and are being implemented exclusively for them. In spite of these efforts, their economic and social conditions remain far from satisfactory.

The Scheduled Castes, being the lowest rung in the all-pervasive and pernicious caste system continue to suffer not only economic deprivation but the more debilitating social discrimination. Reservation for them in Government jobs has helped considerably, but prejudices inherited from the past are still in evidence.

The Scheduled Tribes in the State are not a homogenous population. Some households, classified as Scheduled Tribes are quite modernised and well integrated

with the rest of the population. Such households have considerably improved their economic and social conditions. However, other groups are primitive tribes, many of whom have been hill forest dwellers, and have been now resettled by the State outside the forest areas. Health indicators tend to be poor among this category of tribal groups, due in large part due to their isolation and low literacy levels.

The utilisation of hospital services by SC/ST population appears to be less as compared to the population of other castes. The percentage of SC/ST population in hospitalised cases is 17.2 in rural areas and 9.6 percent in urban areas as compared to 23.4 and 14.5 percent in total population of rural and urban areas respectively.

14.1.2. Women

A number of nutritional studies in India, especially at the micro level have found higher rates of malnutrition among females than among males. One should therefore expect prevalence of morbidity among females to be higher than among males. The NSS Survey (42nd round) as well as NCAER survey of 1993 did not reveal any difference in morbidity rates for both sexes. However, analysis by age provided by NCAER Survey reveals that in the age group 15-59 the prevalence rate of illness among females is higher than among men by ten percent. It should be noted that the NSS and NCAER surveys are based on lay reporting of illness and not based on clinical examination. It is generally felt that there is a considerable difference in the perception of illness by males and females. Women, even if they are suffering from illness, do not consider themselves to be ill as they cannot afford to take time off from domestic chores. As a result women tend to understate prevalence of illness.

The NSS Survey (1986-87) revealed that the sex-ratio among hospitalised cases is 786 females per thousand males while the sex ratio in the population is 960 females per thousand females. The NCAER study of 1993 does not show any difference in the level of utilisation of health care services between sexes. However, the average household expenditure per illness was found to be lower for females both adults and children as compared to their male counterparts. Thus there appears to be a bias against females in hospitalisation as well as intra-household allocation of resources for medical care.

Table 14.1.2.1. Expenditure per Illness Episode by Sex and Place of Residence
NCAER Survey 1993

		Adults		Children	
		Male	Female	Male	Female
Outpatients	Karnataka Rural	135	133	174	40
	India Rural	114	101	60	45
	Karnataka Urban	178	158	66	47
	India Urban	134	126	77	61
Inpatients *	India Rural	1105	934	N.A	N.A
	India Urban	1339	989	N.A	N.A
	Karnataka Rural	1055		N.A	
	Karnataka Urban	1224		N.A	

* Expenditure by sex for Karnataka is not available. N.A.: Not available

14.2. Existing Primary Health Care Services

There are 1253 PHCs and 7793 Sub-centres in the State. During the recent past 158 PHCs and 200 Sub-centres have been sanctioned but are yet to become operational. These centres are expected to provide promotive and curative services not only at the centre but also in the field. Each PHC has on an average six sub-centres attached to it. The Medical Officer of the PHC is expected to visit sub-centres on three days in a week. On those days he will work in the PHC in the morning session and visit sub-centre in the afternoon to provide promotive and curative services on the spot.

Each sub-centre is managed by an Asst. Health Worker Female (ANM). Besides, there is on an average one Jr. Asst. Health Worker (Male) for every two Female Health Assistants. These junior assistants are expected to visit each household in their respective territories to provide health and family welfare services.

A beneficiary need assessment was carried out in ten districts in 1992. During the survey, a sample of community leaders and women from tribal and non-tribal villages were asked if any one is visiting each household in the village to provide each type of health care service out of a range of health and family welfare services. If the response was positive, they were asked to specify the category of health worker who is visiting. Selected findings of the survey are presented in Annexure 7. It was reported by 81.3 percent of respondents in tribal areas and 93.8 percent of respondents in non-tribal areas that each household is visited by health worker to check if any member has fever. Sixty five percent of the respondents stated that medicines are dispensed by the health worker. In tribal villages 90 percent of the visits for detecting illness are made by the female health worker while in non tribal villages, 63 percent of the visits are made by the female worker and 30 percent of the visits by the male health worker.

It is proposed to strengthen the existing outreach set-up to improve the access to health care services and equity to the disadvantaged sections.

14.3. Proposed Schemes

14.3.1. Scheme for SC/STs

The average population per sub-centre in 1995 is estimated at 4121 persons and the SC/ST population at 981. On an average a sub-centre covers 3.5 villages. The SC/ST population in a village will be 280 persons. In a large number of sub-centres besides the ANM, there are also the male multipurpose workers who could supplement ANM's efforts in approaching each SC/ST house.

It is proposed to introduce a system of health check-up on an annual basis in respect of SC/ST families residing in the rural areas. Each member of every SC/ST household would undergo a thorough medical examination which would include:

- (i) Complete physical examination and identifying individuals requiring diagnostic tests and /or treatment,
- (ii) Gynaecological examination of adolescent girls and women in the ages 11 to 60 years, screening for cervical and breast cancer for women in the age group 35-60 years, and
- (iii) Simple laboratory investigations like examination of urine, blood etc. for early detection of diseases, if any.

The medical check-up will be conducted at camps to be organised at the sub-centre or in the villages covered by it provided suitable premises are available. At the beginning of the year the Medical Officer of the PHC shall draw up a Schedule indicating the date, time and place at which the health check-up team would visit each sub-centre and submit to the DHO for approval.

Those suffering from some visible ailment may be expected to approach the medical camp on their own. However, it is likely that those who are not aware of any disease may not attend the Health Check-up Camp. In order to ensure that the maximum number of households attend the health check-up the ANM and the male health worker will make house to house contact with each SC/ST household prior to the date on which the health check-up is scheduled in a particular village. The elected Gram Panchayat members, specially the SC/ST and women Panchayat members will be involved in this effort.

The Health Check-up team would consist of

- Medical officer of the PHC
- Lady Medical Officer
- Lab Technician
- Senior Health Assistant (Male)
- Senior Health Assistant (Female) (LHV), and
- Junior Health Assistant (Female) (ANM)

The team would carry with it such equipment and other materials as are ordinarily required for a thorough medical health check-up.

For transportation of equipment, doctors and other staff wherever the PHC has a vehicle, the same vehicle would be utilised. In respect of PHCs where no vehicle is provided, the medical officer of the PHC would be given an amount of Rs. 400 for hiring a suitable vehicle for transportation of the equipment and the staff to the sub-centres.

In some districts specially in the Hyderabad-Karnataka region adequate number of Lady Medical Officers are not available in the Govt. sector, at the PHC or the Taluka hospital level. In such cases the services of available lady doctors in the district hospital would be utilised for the check-ups. Where even adequate number are not available at the District hospital, services of private Lady doctors available at the

district and taluka levels will be used. In such cases an honorarium of Rs. 500/- per camp will be fixed for their services.

An amount of Rs. 500/- will have to be earmarked towards drugs and medicine, for each camp.

Each individual belonging to the Scheduled Casts/Tribes would be issued a Health Check-up Card free of cost. In respect of women, apart from the regular pelvic examination, screening for cervical and breast cancer will also be undertaken. This will serve to broaden the scope of health and FW services to SC/ST women in the rural areas, which have remained confined to FW services alone. The camp will also provide family planning services.

Cases requiring further examination or treatment would be referred to the nearest Government hospital where facilities are available. In all such cases a referral card would be issued to the persons concerned, and such patients would get free treatment.

The Camps for Check-up will be held in the afternoon when people would be free from work. Out of the 280 individuals belonging to Scheduled Castes/Tribes in a village, at any given time 15 persons would be ill. Considering an average examination time of 10 minutes by the doctor, the sick persons would take up 2.5 hours leaving 5.5 hours for checking those who are not ill. If a doctor takes five minutes to examine one individual, in the remaining time only 66 individuals or 25 percent of non-sick SC/ST population can be covered. In order to cover all the SC/ST population of village four camps are required and 80 camps to cover all the villages under the PHC in one year.

It is also possible that at the time of the camp some sick persons belonging to non-SC/ST households would like to avail of the health care services. It would be neither feasible nor appropriate to leave them out, though they would not be entitled to health cards. The number of camps to cover the SC/ST population would increase with the number of sick persons from non-SC/ST households seeking health care at the camps.

14.3.2. Introduction of the Scheme :

It is proposed to introduce this scheme in a phased manner. In the first phase, the five districts of Mysore, Hassan, Kolar, Bijapur and Raichur during the first year of the project. Before extension of the scheme to the remaining districts, a quick study will be made to assess the impact of the scheme on the access of the SC/ST families to the H & FW services, and in the improvement of their health status.

In the second phase the districts of Belgaum, Bellary Chitradurga, Dakshina Kannada, and Gulbarga will be covered. The programme will be extended to cover the remaining ten districts in the third phase.

14.4 Improvement of access among Women

14.4.1 Women's Health throughout the Life Cycle :

Women's low social status and reproductive role expose them to high health risks. The health of women is an important concern as it affects the next generation, and her productivity in economic activities. There is overwhelming evidence to show that many of the interventions that address women's health problems are highly cost-effective. Special attention is required to reach females during adolescence, when reproductive and other lifestyle behaviours set the stage for later life.

The Project proposes to view women's health through the life cycle approach that takes into account both the specific and the cumulative effects of poor health and nutrition. Many of the problems that affect women of reproductive age, their new born, and older women begin in childhood and adolescence.

14.4.2. Existing Interventions

The Department through existing Programmes such as the Family Welfare Programmes, CSSM, and IPP-IX is already engaged in improving access to some essential services to improve women's health. These services, which are now being emphasised include:

- Offering wider choice of short and long term contraceptive methods;
- Enhanced maternity care;
- Safe pregnancy and delivery services;
- Nutrition assistance to pregnant, nursing and lactating mothers; and,
- Prevention and management of unwanted pregnancies.

Although these are important interventions, they mainly relate to maternal health. Recent literature has pointed to the urgent need to address other aspects of women's health which go beyond her role as a mother.

14.4.3. New Interventions

The strategy to improve women's health must revolve round promoting gender sensitive policies, on the one hand, and strengthening women's health services on the other. Towards this end, during the Project period, the range of expanded services are proposed to be introduced, both with and without specific Project interventions:

In the first phase of the Project, the focus will be on the following new interventions, which are relatively easy to introduce:

1. Promotion of positive health practices, such as personal hygiene especially during menstruation, adequate nutrition etc.;
2. Screening for and treatment of reproductive tract interventions and sexually transmitted diseases;
3. Screening and management of gynaecological problems;
4. Cervical cancer screening and treatment; and
5. Increased Policy dialogue and strategic efforts to reduce gender discrimination and violence.

In the second phase a beginning will be made in introducing the following additional interventions:

6. Management of problems associated with onset of menarche and menopause;
7. Screening and treatment for Breast Cancer; and
8. Prevention and treatment of infertility.

It needs to be emphasised that while the above range of services have important health components, they also require interventions which are much beyond the scope of the Department.

The Programme will cover all other women not covered by the Health Check-up scheme for SC/ST. The ANM will adopt the syndrome approach to identify cases among women aged 10-60 needing further screening and referral. An ANM has to screen approximately 1020 females in the age group 10-60 or approximately four cases per day.

The ANM will identify suspected cases for each type of disorder/disease among the following target groups by syndrome approach and refer to LHV/MO of PHC for detailed check-up and treatment if found necessary.

Disorder/Disease	Age Group/ (Women/Cases)	Screening by	Diagnostic Test	Treatment by
Menstrual disorders	10-19 unmarried (140/28)	MO		MO
Sexually transmitted diseases	15-49 (770/154)	MO	STD/HIV & Sensitivity	MO
Gynaecological Disorders	15-60 (880/132)	LHV/MO		100 bed/ District Hospital
Malignancy(Breast & Cervical)	35-60 (630/25)	MO	PAP Smear	Tertiary hospital
Infertility	20-30 (77)	MO	Semen Exam.	District Hospital
High Risk Pregnancy (detected during ANC)	15-44 (120/30)	MO		100 bed Hospital
High Risk Pregnancy (detected during labour)	15-44 (120/15)	Shift immediately to		100 bed Hospital

The number of cases referred to MO of PHC will be less than 300 in a year. It is planned that an LMO from PHC or an Lady doctor from private sector visits the

sub-centre one day in a month to examine the cases referred to by the ANM and provide treatment or refer to appropriate hospital indicated in the last column.

In order to cope with the expected increase in diagnostic tests, it is proposed to add one laboratory technician to each 100 bed hospital.

14.5. Training of ANM and LHV

The task of carrying out diagnostic tests and initial screening is proposed to be undertaken by the Health Assistants (Senior & Junior). These cadres will be imparted essential skills for screening and identifying individuals who need detailed examination by Medical Officers.

ANMs will be given training in identifying suspected cases by syndrome approach and LHV in screening for gynaecological disorders. The duration of training will be three days and will be imparted at 100 bed or district hospitals.

14.6. IEC:

There is expected to be vast improvement in the range of services at the CHCs and taluka level hospitals through Project interventions relating to improvements in the physical and staffing infrastructure described in the earlier Chapters. However, mere availability is not enough. Improved services must translate themselves into improved utilisation. IEC activity will aim at providing information on the services available at various levels motivate the target groups to avail of the services. The IEC activity will also focus on increasing awareness of and educating girls and women on positive health practices among adolescent girls and women.

The existing multipurpose workers are likely to be over-stretched and will not have adequate time for IEC activity. It is proposed to involve four types of institutions in IEC activity:

Grama Panchayats: The State has 5640 elected Grama Panchayats, which at present have 35,153 elected women Members, constituting 43.6% of the total elected Members. The Karnataka Panchayat Raj Act, 1993 has specifically included implementation of programmes relating to family welfare and women as functions to be performed by the Grama Panchayats. The elected Members, more specifically women Members are vast reservoir of potential leaders who are available at the village level to support interventions for improving the health status of their community.

Non Governmental Organisations: The State has an extensive network of voluntary organisations working in the area of health. Their support is proposed to be enlisted in expanding interventions relating to health of the disadvantaged sections.

Mahila Swastha Sanghas: 4000 Mahila Swastha Sanghas have already been established by the Department. Under IPP IX 1000 Sanghas are proposed to be

strengthened. These sanghas can be effectively utilised in spreading awareness on issues relating to women's health.

Anganwadis: The State has 185 ICDS Projects and as many as 30,000 Anganwadis. The Anganwadi workers are proposed to be utilised to create awareness of the proposed health care services for the disadvantaged sections.

The Kidwai Memorial Institute of Oncology (KMIO) has taken up a Pilot experiment of involving NGOs in the screening of cervix Cancer. Feedback has been encouraging and a Workshop is being held on 27-29 November to finalise the strategy for community involvement in the screening of cervix Cancer. The workshop will be attended by Cancer and Medical experts, NGOs, representative of Panchayati Raj institutions, and PHC level MOs and ANMs. This Workshop will be the fore-runner of a broader Workshop aimed at finalising the Strategy for community involvement in respect of all the interventions.

14.7. Monitoring and Supervision

At the PHC level, the Medical Officer will be responsible for successful implementation of the scheme. The work of the PHCs will be monitored by the newly designated Taluk Level Medical Officers.

A District Level Committee will be constituted with the CEO, Zilla Panchayat as Chairman. The composition of the committee will be as follows :

CEO, Zilla Panchayat	Chairman
District Surgeon	Member
District Health & Family Welfare Officer	Member
Lay-Secretary of District Hospital	Member Secretary

The Committee shall review the progress of the scheme on a monthly basis and accord financial and other approvals. A monthly progress report will be sent to Additional Director (Projects) who shall monitor and review the scheme at the State level.

Chapter 15

Project Cost By Years & Components

In Million Rs.

Component : 1.1 Improve Policy Frame Work (Strategic Planning Cell)

	Base Cost					Total
	1996-97	1997-98	1998-99	1999-00	2000-01	
Investment Costs						
Civil Works (Renovation)						
Civil Works (Extension)						
Professional Services						
Furniture	0.34	0.00	0.00	0.00	0.00	0.34
Equipment (Medical)						
Equipment (Other)	1.75	0.00	0.00	0.00	0.00	1.75
Vehicles	1.43	0.00	0.00	0.00	0.00	1.43
Medical Lab Supplies						
Medicines						
Other Supplies						
MIS/IEC Materials						
Local Training						
Local Consultants	2.00	2.00	2.00	0.00	0.00	6.00
Studies	2.50	2.50	2.50	2.50	2.50	12.50
Workshops	0.20	2.00	1.00	1.00	1.00	5.20
Fellowships (Foreign)	0.00	6.50	6.50	0.00	0.00	13.00
Fellowships (Local)						
Total Investment Costs	8.22	13.00	12.00	3.50	3.50	40.22
Recurrent Costs						
Salaries of Additional Staff	0.70	1.40	1.40	1.40	1.40	6.30
Operational Expenses	0.25	0.32	0.39	0.46	0.46	1.87
Building Maintenance						
Equipment Maintenance	0.00	0.00	0.17	0.17	0.17	0.50
Total Recurrent Costs	0.95	1.72	1.96	2.03	2.03	8.67
Total BASELINE COSTS	9.16	14.72	13.96	5.53	5.53	48.89
Physical Contingencies						
Price Contingencies						
Total PROJECT COSTS						

	Number of Posts	Annual Salary	Furniture Cost	Car per Person
Additional Secretary	1	137700	50000	285000
Additional Director	1	170438	50000	285000
Joint Director	3	130275	40000	285000
FDA	5	49343	15000	
SDA	5	39690	15000	
Driver	5	39690		
Group D	3	31860	500	

Six computers in a local area network, Fax and Photocopier

Annual maintenance of computers, Furniture & office Equipment is costed at 8 percent of Equip. value

Operational Expenses include costs of vehicle usage, and office expenses

Office expenses computed @ 10% of Salary

Project Cost By Years & Components

In Million Rs.

Component : 1.2. Strengthening Implementation Capacity (Project Management)

	Base Cost					Total
	1996-97	1997-98	1998-99	1999-00	2000-01	
Investment Costs						
Civil Works (Renovation)	0.00	0.00	0.00	0.00	0.00	0.00
Civil Works (Extension)	9.00	0.00	0.00	0.00	0.00	9.00
Professional Services	0.90	0.00	0.00	0.00	0.00	0.90
Furniture	0.64	0.00	0.00	0.00	0.00	0.64
Equipment (Medical)						
Equipment (Others)	3.80	0.00	0.00	0.00	0.00	3.80
Vehicles	1.00	31.82	0.00	0.00	0.00	32.82
Medical Lab Supplies						
Medicines						
Other Supplies						
MIS/IEC Materials						
Local Training						
Local Consultants						
Studies						
Workshops						
Fellowships (Foreign)						
Fellowships (Local)						
Total Investment Costs	15.34	31.82	0.00	0.00	0.00	47.16
Recurrent Costs						
Salaries of Additional Staff	1.18	8.31	8.31	8.31	8.31	34.42
Operational Expenses	0.20	4.32	5.96	7.60	7.60	25.69
Building Maintenance						
Equipment Maintenance	0.00	0.00	0.36	0.36	0.36	1.07
Total Recurrent Costs	1.38	12.63	14.63	16.27	16.27	1.07
Total BASELINE COSTS	16.72	44.45	14.63	16.27	16.27	48.23
Physical Contingencies						
Price Contingencies						
Total PROJECT COSTS						

	Number of Posts	Annual Salary	Furniture Cost	
Additional Director	1	170438	50000	Two Cars for Addl. & JDS
Joint Director	1	130275	40000	Two Jeeps for Office Staff
Dy. Directors	4	116100	30000	148 Jeeps for:
Chief Accounts Officer	1	116100	30000	20 Dist. Surgeons and
Chief Admin. Officer	1	116100	30000	128 Taluk Officers
FDA	8	49343	15000	Cost of Car Rs. 285,000
SDA	8	39690	15000	Cost of Jeep Rs. 215,000
Typist	8	39690	15000	
Driver	152	39690		
Group D	8	31860	500	

Annual maintenance of computers, Furniture & office Equipment is costed at 8 percent of Equip. value

Operational Expenses include costs of vehicle usage, and office expenses

Office expenses computed @ 10% of Salary

Project Cost By Years & Components

In Million Rs.

Component : 1.3. Strengthening Implementation Capacity (Engineering Wing)

	Base Cost					Total
	1996-97	1997-98	1998-99	1999-00	2000-01	
Investment Costs						
Civil Works (Renovation)						
Civil Works (Extension)						
Professional Services						
Furniture	1.64	0.00	0.00	0.00	0.00	1.64
Equipment (Medical)						
Equipment (Other)	1.33	0.00	0.00	0.00	0.00	1.33
Vehicles	5.64	0.00	0.00	0.00	0.00	5.64
Medical Lab Supplies						
Medicines						
Other Supplies						
MIS/IEC Materials						
Local Training						
Local Consultants						
Studies						
Workshops						
Fellowships (Foreign)						
Fellowships (Local)						
Total Investment Costs	8.61	0.00	0.00	0.00	0.00	8.61
Recurrent Costs						
Salaries of Additional Staff	3.40	6.41	6.41	6.41	6.41	29.05
Operational Expenses	0.71	1.37	1.65	1.93	1.93	7.58
Building Maintenance						
Equipment Maintenance	0.00	0.00	0.24	0.24	0.24	0.71
Total Recurrent Costs	4.10	7.78	8.30	8.58	8.58	37.35
Total BASELINE COSTS	12.71	7.78	8.30	8.58	8.58	45.95
Physical Contingencies						
Price Contingencies						
Total PROJECT COSTS						

	Number of Posts	Annual Salary	Furniture Cost
Chief Engineer	1	130275	50000
Supdt. Engineer/Dy. Chief . Architec	2	116100	40000
Executive Engineer	4	96863	30000
Asst. Executive Engineer/Architect	8	85725	25000
Asst. Engineer	24	75600	25000
Draftsman	1	59670	15000
FDA	15	49343	15000
SDA	15	39690	15000
Typist	15	39690	15000
Driver	15	39690	15000
Group D	15	31860	500

Annual maintenance of computers, Furniture & office Equipment is costed at 8 percent of Equip. value
Operational Expenses include costs of vehicle usage, and office expenses
Office expenses computed @ 10% of Salary

Project Cost By Years & Components

In Million Rs.

Component : 1.4. Strengthening Implementation Capacity (Equipment Maintenance)

	Base Cost					Total
	1996-97	1997-98	1998-99	1999-00	2000-01	
Investment Costs						
Civil Works (Renovation)						
Civil Works (Extension)	1.90	0.00	0.00	0.00	0.00	1.90
Professional Services	0.19	0.00	0.00	0.00	0.00	0.19
Furniture	0.78	0.00	0.00	0.00	0.00	0.78
Equipment (Medical)						
Equipment (Other)	1.95	0.00	0.00	0.00	0.00	1.95
Vehicles	0.62	0.00	0.00	0.00	0.00	0.62
Medical Lab Supplies						
Medicines						
Other Supplies	0.30	0.00	0.00	0.00	0.00	0.30
MIS/IEC Materials						
Local Training						
Local Consultants						
Studies						
Workshops						
Fellowships (Foreign)						
Fellowships (Local)						
Total Investment Costs	5.74	0.00	0.00	0.00	0.00	5.74
Recurrent Costs						
Salaries of Additional Staff	1.35	2.69	2.69	2.69	2.69	12.11
Operational Expenses	0.20	0.40	0.43	0.46	0.46	1.94
Building Maintenance						
Equipment Maintenance	0.00	0.00	0.22	0.22	0.22	0.66
Total Recurrent Costs	1.55	3.09	3.34	3.37	3.37	14.71
Total BASELINE COSTS	7.28	3.09	3.34	3.37	3.37	20.44
Physical Contingencies						
Price Contingencies						
Total PROJECT COSTS						

	Number of Posts	Annual Salary	Furniture Cost
Joint Director	1	130275	50000
Dy. Director	3	116100	40000 Vehicles
Engineer Grade I	2	96863	30000 One Car
Engineer Grade II	4	85725	25000 Two Jeeps
Engineer Grade III	6	75600	25000
Technicians	4	55013	15000 Central Repair Facility
FDA	6	49343	15000 is included
SDA	6	39690	15000
Typist	4	39690	15000
Driver	3	39690	
Group D	6	31860	500

Annual maintenance of computers, Furniture & office Equipment is costed at 8 percent of Equip value

Operational Expenses include costs of vehicle usage, and office expenses

Office expenses computed @ 10% of Salary

Project Cost By Years & Components

In Million Rs.

Component : 1.5. Strengthening Implementation Capacity (MIS)

	Base Cost					Total
	1996-97	1997-98	1998-99	1999-00	2000-01	
Investment Costs						
Civil Works (Renovation)						
Civil Works (Extension)						
Professional Services						
Furniture						
Equipment (Medical)						
Equipment (Other)	0.00	35.42	35.42	35.42	35.43	141.69
Vehicles						
Medical Lab Supplies						
Medicines						
Other Supplies						
MIS/IEC Materials						
Local Training	0.00	2.00	2.00	2.00	2.00	8.00
Local Consultants	5.00	5.00	5.00	0.00	0.00	15.00
Studies						
Workshops						
Fellowships (Foreign)						
Fellowships (Local)						
Total Investment Costs	5.00	42.42	42.42	37.42	37.43	164.69
Recurrent Costs						
Salaries of Additional Staff						
Operational Expenses	0.00	3.03	9.39	15.43	21.48	49.32
Building Maintenance						
Equipment Maintenance	0.00	0.00	0.00	2.83	5.67	8.50
Total Recurrent Costs	0.00	3.03	9.39	18.26	27.14	57.82
Total BASELINE COSTS	5.00	45.45	51.81	55.68	64.57	222.51
Physical Contingencies						
Price Contingencies						
Total PROJECT COSTS						
	Number	HW	SW Supplies			
Hospitals: 30/50 Beds	186	0.19	0.05	0.06	44.64	
: 100 Beds	34	0.50	0.10	0.12	20.4	
: 200-400 Beds	11	1.50	0.31	0.18	19.91	
: Over 400 Beds	19	2.00	0.46	0.24	46.74	
District Surgeons	20	0.25	0.25	0.12	10.00	
					141.69	

Project Cost By Years & Components

In Million Rs.

Component : 1.6. Strengthening Implementation Capacity (Surveillance System)

	Base Cost					Total
	1996-97	1997-98	1998-99	1999-00	2000-01	
Investment Costs						
Civil Works (Renovation)						
Civil Works (Extension)						
Professional Services						
Furniture	0.00	1.30	0.00	0.00	0.00	1.30
Equipment (Medical)						
Equipment (Other)	0.00	7.27	0.00	0.00	0.00	7.27
Vehicles	0.00	4.30	0.00	0.00	0.00	4.30
Medical Lab Supplies						
Medicines						
Other Supplies						
MIS/IEC Materials						
Local Training						
Local Consultants						
Studies						
Workshops						
Fellowships (Foreign)						
Fellowships (Local)						
Total Investment Costs	0.00	12.87	0.00	0.00	0.00	12.87
Recurrent Costs						
Salaries of Additional Staff	0.00	4.12	4.12	4.12	4.12	16.48
Operational Expenses	0.00	0.63	0.84	0.95	1.06	3.48
Building Maintenance						
Equipment Maintenance						
Total Recurrent Costs	0.00	4.75	4.96	5.07	5.18	19.96
Total BASELINE COSTS	0.00	17.61	4.96	5.07	5.18	32.82
Physical Contingencies						
Price Contingencies						
Total PROJECT COSTS						
	Number of Posts	Annual Salary	Furniture Cost			
Microbiologist	20	62100	25000			
Asst. Entomologist	20	49343	25000			
Sr. Health Assistant	20	55013	15000			
Driver	20	39690				

Jeeps :20

Annual maintenance of computers, Furniture & office Equipment is costed at 8 percent of Equip. value
Operational Expenses include costs of vehicle usage, and office expenses
Office expenses computed @ 10% of Salary

Project Cost By Years & Components

In Million Rs.

Component : 2.1. Extending & Renovating CHCs, Taluka & District Hospitals

(a) Civil Works

	Base Cost					Total
	1996-97	1997-98	1998-99	1999-00	2000-01	
Investment Costs						
Civil Works (Renovation)	90.66	62.54	57.26	41.09	0.00	251.55
Civil Works (Extension)	274.27	241.92	228.25	167.19	0.00	911.63
Professional Services	33.99	27.95	26.05	18.33	0.00	106.32
Furniture						
Equipment (Medical)						
Equipment (Other)						
Vehicles						
Medical Lab Supplies						
Medicines						
Other Supplies						
MIS/IEC Materials						
Local Training						
Local Consultants						
Studies						
Workshops						
Fellowships (Foreign)						
Fellowships (Local)						
Total Investment Costs	398.92	332.41	311.56	226.61	0.00	1269.50
Recurrent Costs						
Salaries of Additional Staff						
Operational Expenses						
Building Maintenance	0.00	0.00	16.07	19.16	22.18	57.41
Equipment Maintenance						
Total Recurrent Costs	0.00	0.00	16.07	19.16	22.18	57.41
Total BASELINE COSTS	398.92	332.41	327.62	245.77	22.18	1326.90
Physical Contingencies						
Price Contingencies						
Total PROJECT COSTS						
	5355	3694	3382	2427		14858
Existing Beds	5355	9049	12431	14858	14858	
Additional Beds		1114	1031	1008	679	3832
Total Beds	5355	6386	7394	8073	8073	
Current Value of Buildings	803	958	1109	1211	1211	
Building Maintenance @ 2% per annum			16.07	19.16	22.18	57.41
 New Civil Works(hospitals)	179.66	168.90	159.28	110.64	0.00	618.48
Hospital Buildings	171.56	158.77	155.23	104.57	0.00	590.13
Casualty Wards	8.10	10.13	4.05	6.08	0.00	28.35
Renovation (hospitals)	90.66	62.54	57.26	41.09	0.00	251.55
Staff Quarters	69.62	48.02	43.97	31.55	0.00	193.15
						1681.66
	249.27	216.92	203.25	142.19	0.00	811.63

Project Cost By Years & Components

In Million Rs.

Component : 2.1. Extending & Renovating CHCs, Taluka & District Hospitals
(b) Waste Management

	Base Cost					Total
	1996-97	1997-98	1998-99	1999-00	2000-01	
Investment Costs						
Civil Works (Renovation)						
Civil Works (Extension)						
Professional Services						
Furniture						
Equipment (Medical)						
Equipment (Other)	21.42	18.20	16.01	11.88	0.00	67.51
Vehicles						
Medical Lab Supplies						
Medicines						
Other Supplies						
MIS/IEC/Training Materials						
Local Training						
Local Consultants						
Studies						
Workshops						
Fellowships (Foreign)						
Fellowships (Local)						
Total Investment Costs	21.42	18.20	16.01	11.88	0.00	67.51
Recurrent Costs						
Salaries of Additional Staff						
Operational Expenses	0.00	8.08	14.68	20.68	24.74	68.18
Building Maintenance						
Equipment Maintenance						
Total Recurrent Costs	0.00	8.08	14.68	20.68	24.74	68.18
Total BASELINE COSTS	21.42	26.28	30.69	32.57	24.74	135.69
Physical Contingencies						
Price Contingencies						
Total PROJECT COSTS						

Project Cost By Years & Components

In Million Rs

Component : 2.2. Upgrading Clinical Effectiveness Hospitals

(a) Equipment , Drugs and Supplies

	Base Cost					Total
	1996-97	1997-98	1998-99	1999-00	2000-01	
Investment Costs						
Civil Works (Renovation)						
Civil Works (Extension)	0.00	3.60	3.20	3.20	3.20	13.20
Professional Services	0.00	0.36	0.32	0.32	0.32	1.32
Furniture	0.00	29.59	28.23	20.90	17.30	96.02
Equipment (Medical)	0.00	110.22	84.64	76.00	55.60	326.47
Equipment (Other)	0.00	25.96	21.71	17.71	13.33	78.72
Medical Lab Supplies	0.00	2.28	4.40	6.46	7.86	21.00
Medicines	0.00	16.32	31.42	46.19	56.14	150.07
Other Supplies	2.00	12.30	20.21	29.01	35.20	98.72
MIS/IEC/Training Materials						
Local Training						
Local Consultants						
Studies						
Workshops						
Fellowships (Foreign)						
Fellowships (Local)						
Total Investment Costs	2.00	200.64	194.13	199.80	188.95	785.52
Recurrent Costs						
Salaries of Additional Staff	0.00	42.64	81.40	114.31	147.68	386.03
Operational Expenses	0.00	7.04	14.36	21.31	29.22	71.93
Building Maintenance						
Equipment Maintenance						
Total Recurrent Costs	0.00	49.68	95.76	135.62	176.90	457.96
Total BASELINE COSTS	2.00	250.32	289.89	335.42	365.85	1243.48
Physical Contingencies						
Price Contingencies						
Total PROJECT COSTS						
Additional Beds		1114	1031	1008	679	3832
Cumulative Additional Beds		1114	2145	3153	3832	
Medical & Lab Supplies						
(@ Rs. 2050 per additional bed		2.28	4.40	6.46	7.86	
Medicines (@ Rs. 14650 per bed		16.32	31.42	46.19	56.14	
Additional Salaries:		Year 1	Year 2	Year 3	Year 4	
Upgrading 30- 50	0.76	7	7	7	6	27
Upgrading 30-100	2.24	1	1	1	0	3
Upgrading 50-100	1.47	5	4	4	4	17
Upgrading 250-400	4.33	2	0	1	1	4
Total		23.57	13.44	17.77	14.77	51
Casualty wards		0.50	0.59	0.25	0.34	
		24.07	14.03	18.02	15.11	
		24.07	38.10	56.12	71.23	

About 25 percent of furniture and Equipment as per norms is available

Project Cost By Years & Components

In Million Rs.

Component : 2.2. Upgrading Clinical Effectiveness Hospitals

(b) Training of Manpower

	Base Cost					Total
	1996-97	1997-98	1998-99	1999-00	2000-01	
Investment Costs						
Civil Works (Renovation)						
Civil Works (Extension)						
Professional Services						
Furniture						
Equipment (Medical)						
Equipment (Other)						
Vehicles						
Medical Lab Supplies						
Medicines						
Other Supplies	0.00	0.25	0.50	0.50	0.50	1.75
MIS/IEC/Training Materials	3.60	4.30	2.70	0.30	0.20	11.10
Local Training	0.00	18.70	18.70	18.70	21.03	77.13
Local Consultants						
Studies	1.00	1.50	1.50	1.50	1.50	7.00
Workshops	2.00	2.00	3.25	3.25	2.00	12.50
Fellowships (Foreign)	1.50	2.75	2.75	1.50	1.50	10.00
Fellowships (Local)	1.00	1.00	1.00	1.00	1.00	5.00
Total Investment Costs	9.10	30.50	30.40	26.75	27.73	124.48
Recurrent Costs						
Salaries of Additional Staff						
Operational Expenses						
Building Maintenance						
Equipment Maintenance						
Total Recurrent Costs	0.00	0.00	0.00	0.00	0.00	0.00
Total BASELINE COSTS	9.10	30.50	30.40	26.75	27.73	124.48
Physical Contingencies						
Price Contingencies						
Total PROJECT COSTS						

Project Cost By Years & Components

In Million Rs.

Component : 2.2. Upgrading Clinical Effectiveness Hospitals
(c) Maintenance of Equipment

	Base Cost					Total
	1996-97	1997-98	1998-99	1999-00	2000-01	
Investment Costs						
Civil Works (Renovation)						
Civil Works (Extension)	0.00	18.62	0.00	0.00	0.00	18.62
Professional Services	0.00	1.86	0.00	0.00	0.00	1.86
Furniture	0.00	3.36	0.00	0.00	0.00	3.36
Equipment (Medical)						
Equipment (Other)	2.50	21.15	0.00	0.00	0.00	23.65
Vehicles	0.98	7.80	0.00	0.00	0.00	8.78
Medical Lab Supplies						
Medicines						
Other Supplies	0.30	4.05	0.00	0.00	0.00	4.35
MIS/IEC/Training Materials						
Local Training	0.00	2.33	2.33	2.33	0.00	6.99
Local Consultants						
Studies						
Workshops						
Fellowships (Foreign)						
Fellowships (Local)						
Total Investment Costs	3.78	59.17	2.33	2.33	0.00	67.61
Recurrent Costs						
Salaries of Additional Staff	0.00	15.79	18.01	18.01	18.01	69.81
Operational Expenses	0.00	0.10	0.90	1.32	2.73	5.05
Building Maintenance						
Equipment Maintenance	0.00	0.81	9.88	15.89	21.49	48.06
Total Recurrent Costs	0.00	16.69	28.79	35.22	42.23	122.92
Total BASELINE COSTS	3.78	75.86	31.12	37.55	42.23	190.54
Physical Contingencies						
Price Contingencies						
Total PROJECT COSTS						
Value of furniture & Equipment	36.14	252.47	186.02	161.92	121.67	758.21
Maintenance cost @ 2.76 %		1.00	6.97	5.13	4.47	
Cumulative per year		1.00	7.97	13.10	17.57	

Training Rs. 30,000 per person
233 persons spread over three years

Project Cost By Years & Components

In Million Rs.

Component : 2.3 Improving Referral Mechanism and Linkages with
Primary & Tertiary level

	Base Cost					Total
	1996-97	1997-98	1998-99	1999-00	2000-01	
Investment Costs						
Civil Works (Renovation)						
Civil Works (Extension)						
Professional Services						
Furniture						
Equipment (Medical)						
Equipment (Other)						
Vehicles	0.00	27.76	27.53	22.73	19.26	97.28
Medical Lab Supplies						
Medicines						
Other Supplies	0.00	0.25	0.50	0.50	0.50	1.75
MIS/IEC Materials	0.10	0.3	0.3	0.3	0.2	1.20
Local Training	0.00	0.5	0.5	0.5	0.5	2.00
Local Consultants	0.10	0.00	0.00	0.00	0.00	0.10
Studies						
Workshops	0.00	1.25	1.25	1.25	0.00	3.75
Fellowships (Foreign)						
Fellowships (Local)						
Total Investment Costs	0.20	30.06	30.08	25.28	20.46	106.08
Recurrent Costs						
Salaries of Additional Staff						
Operational Expenses						
Building Maintenance						
Equipment Maintenance						
Total Recurrent Costs	0.00	0.00	0.00	0.00	0.00	0.00
Total BASELINE COSTS	0.20	30.06	30.08	25.28	20.46	106.08
Physical Contingencies						
Price Contingencies						
Total PROJECT COSTS						

Project Cost By Years & Components

In Million Rs

Component : 2.4. Improving Access & Equity to Disadvantaged Section

	Base Cost					Total
	1996-97	1997-98	1998-99	1999-00	2000-01	
Investment Costs						
Civil Works (Renovation)						
Civil Works (Extension)						
Professional Services						
Furniture						
Equipment (Medical)						
Equipment (Other)						
Vehicles						
Medical Lab Supplies	5.46	10.92	16.39	27.31	43.70	103.78
Medicines	14.13	28.26	45.36	74.68	105.71	268.13
Other Supplies	3.03	0.00	2.70	3.45	0.00	9.18
MIS/IEC Materials	5.00	5.00	5.00	5.00	0.00	20.00
Local Training	2.00	2.00	2.00	0.00	0.00	6.00
Local Consultants						
Studies						
Workshops						
Fellowships (Foreign)						
Fellowships (Local)						
Total Investment Costs	29.62	46.18	71.44	110.44	149.40	407.08
Recurrent Costs						
Salaries of Additional Staff	1.13	2.27	4.30	6.32	6.32	20.34
Operational Expenses	3.03	6.05	14.08	21.76	21.76	66.68
Building Maintenance						
Equipment Maintenance						
Total Recurrent Costs	4.16	8.32	18.38	28.08	28.08	87.02
Total BASELINE COSTS	33.78	54.50	89.82	138.52	177.48	494.10
Physical Contingencies						
Price Contingencies						
Total PROJECT COSTS						
Phase	1	2	3			
SC/ST Population (000s): 1995	2522	2251	2876			
Attendance 30%	757	675	863			
Campaigns (50 Persons/day)	15131	13504	17256			
Percent with ailments(2%)	50436	45013	57521			
Cards (@ Rs.4/card)	3.03	2.70	3.45			
Drugs Rs. 150/person	7.57	6.75	8.63			
LMOs	2.27	2.03	2.59			
Vehicle Hire with POL	6.05	5.40	6.90			
	1991	2357	2267	2651		
	1995	2522	2251	2876		
	2001	2771	2486	3208		
SCs		2256	2418	3119		
Persons per Subcentre	1991	1045	938	850		
	1995	1118	931	922		
	2001	1228	1028	1029		

Project Cost By Years & Components

In Million Rs.

Total of All Components

	Base Cost					Total
	1996-97	1997-98	1998-99	1999-00	2000-01	
Investment Costs						
Civil Works (Renovation)	90.66	62.54	57.26	41.09	0.00	251.55
Civil Works (Extension)	285.17	264.14	231.45	170.39	3.20	954.35
Professional Services	35.08	30.17	26.37	18.65	0.32	110.59
Furniture	3.40	34.25	28.23	20.90	17.30	104.08
Equipment (Medical)	0.00	110.22	84.64	76.00	55.60	326.47
Equipment (Other)	32.74	108.00	73.14	65.02	48.76	327.66
Vehicles	9.66	71.68	27.53	22.73	19.26	150.86
Medical Lab Supplies	5.46	13.21	20.78	33.77	51.55	124.78
Medicines	14.13	44.58	76.78	120.87	161.84	418.20
Other Supplies	5.63	16.85	23.91	33.46	36.20	116.05
MIS/IEC Materials	8.70	9.60	8.00	5.60	0.40	32.30
Local Training	2.00	25.53	25.53	23.53	23.53	100.12
Local Consultants	7.10	7.00	7.00	0.00	0.00	21.10
Studies	3.50	4.00	4.00	4.00	4.00	19.50
Workshops	2.20	5.25	5.50	5.50	3.00	21.45
Fellowships (Foreign)	1.50	9.25	9.25	1.50	1.50	23.00
Fellowships (Local)	1.00	1.00	1.00	1.00	1.00	5.00
Total Investment Costs	507.94	817.26	710.38	644.01	427.47	3107.05
Recurrent Costs						
Salaries of Additional Staff	7.76	83.64	126.64	161.57	194.95	574.55
Operational Expenses	4.38	31.32	62.68	91.90	111.43	301.71
Building Maintenance	0.00	0.00	16.07	19.16	22.18	57.41
Equipment Maintenance	0.00	0.81	10.86	19.70	28.13	59.50
Total Recurrent Costs	12.14	115.76	216.24	292.34	356.69	993.16
Total BASELINE COSTS	520.07	933.02	926.62	936.34	784.16	4100.21
Physical Contingencies	46.18	85.19	85.99	87.04	71.99	376.29
Price Contingencies	19.40	124.84	214.51	301.97	324.09	984.81
Total PROJECT COSTS	585.65	1143.05	1227.12	1325.35	1180.24	5461.31

Chapter 16

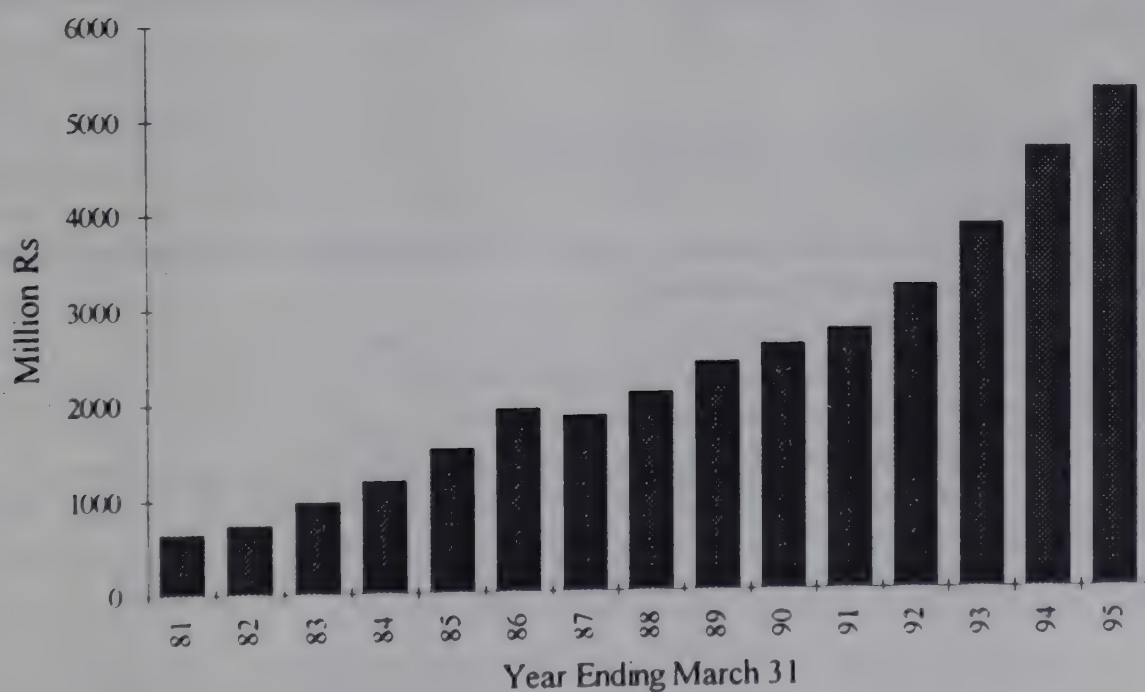
Sustainability and Cost Sharing

16.1 Outlay on Health & Family Welfare

The outlay on Health and Family Welfare increased from Rs 647 million in 1980-81 to Rs. 5,363 million in 1994-95 representing an annual compound growth of 16.3 percent. The per capita outlay increased at annual rate of 14.3 percent from Rs. 17.6 to Rs. 115.0. Adjusting for the observed annual rate of inflation of 8.3 percent during 1981-82 to 1992-93 in Karnataka, the annual increase in real terms in per capita expenditure is 6.0 percent. Assuming that the State would continue to maintain this growth in outlay on health and family welfare, the per capita expenditure on health and family welfare in the year 2002-2003 will be Rs. 206 at current prices. The projected outlay for expected population of 54.237 million would be Rs. 11,173 million.

The share of health and family welfare in the total expenditure of the state is around 4.5 percent. In 1994-95, the Non-Plan expenditure accounts for 60 percent of the total expenditure on health and family welfare. The Non-Plan expenditure, which is met from resources raised internally by the State, is expected to increase from Rs. 3,160 million in 1994-95 to Rs. 6,720 (or 60 percent of projected expenditure in the year 2002-03).

Outlay on Health & Family Welfare



16.2. Increase in Recurring Expenditure

The increase in recurring expenditure on account of the development plan outlined in the preceding chapters is estimated at Rs. 297 million per annum. This forms 8.3 percent of the increase in Non-Plan expenditure which is of the order of Rs. 3560 million between 1994-95.

16.3. Cost Sharing

16.3.1. Current Status

The Government of Karnataka has a system of cost sharing by charging for diagnostic services, treatment and usage of wards in the hospitals managed by it. The last revision of these Cost Sharing was made in 1988 *vide* order No: HFW 126 SMM 86 dated March 10, 1988.

There are other types of charges levied e.g. certificates for physical fitness, wounds etc. Fifty percent of the charges collected are retained by the government and the balance given to the doctor issuing the certificate. Charges for the issuance of such certificates were fixed last in 1946 and have not been revised to date

The fees are to be collected and remitted to the treasury. Neither the hospital collecting the fee nor the Department of Health has access to the amount collected. As a consequence, there is no incentive to collect fees. The average collections of fees per year during 1990-93, amounted to Rs. 107 million. Approximately 40 percent or Rs. 41 million is on account of issuance of certificates and the balance amount of Rs. 66 million on account of charges for ward and fees for surgery and investigations. In 1992-93 the collection accounted for 3 percent of the expenditure of the health department.

16.3.2. Current Pattern of Cost Sharing

No fees are collected from outpatients. The registration charges which used to be levied earlier have been discontinued.

Inpatients with annual family income of below Rs. 8,001 are exempted from paying for any service as they are considered to be economically weaker sections. The patients with family income of over Rs. 8,000 and admitted in general wards are charged a nominal amount of Rs. 2 per day. There are charges for special wards, graded according to the number of beds in such special wards, the maximum charge being Rs. 30 per day for a single bed in special ward with basic diet included.

A schedule of rates has been prepared for different services. Those admitted in special wards irrespective of income and those with family income of over Rs. 20,000 admitted in general wards have to pay the full charge as listed. Those admitted in

general wards and with family income of Rs. 8,001 to 20,000 per annum have to pay 50 percent of the charges while those with income below are exempted from all charges.

The charges for issuance of certificates are low, when one considers the present day cost of living. For example, the charge for issuing certificate for physical fitness is Rs. 5. There is justification for substantial revision of these charges. Increasing the charges especially for wound certificates does not affect the economically weaker sections since the certificates are collected by the police without paying any charge when a complaint is lodged by them with the police.

16.3.3. Rationale for Cost Sharing

The appropriateness of adopting cost sharing principles depends on the type of service provided. Hospital services are mostly patient related curative services. There is a scope to charge on curative services provided, a mechanism exists to adjust fees depending on the patients ability to pay. However, the additional revenues generated by cost sharing may not be adequate to cover fully the expenditure in improving quality through better facilities in terms of equipment and drugs. The argument for cost sharing is based on efficiency. If no fee is charged there will be an "excess demand" for services especially hospital beds. Government hospitals are crowded and often the resourceful but the undeserving people get free access, whereas the poor have to incur " transaction costs" to get treatment or a hospital bed. Graded cost recovery from the non-poor is expected to restrict demand for beds thereby releasing beds for the poor. Thus, cost sharing may be a step in restoring equity; the poor may benefit proportionately more than the non-poor.

Charging fees for services may only slightly affect the demand negatively for health services because demand for inpatient and outpatient care is highly inelastic. However, consumers will be more responsive to the quality of care, time costs and the relative prices of alternative types of care givers. Cost sharing will augment resources for the health sector and should, therefore, lead to improvements in supply both in qualitative and quantitative terms. Sustainability would also be promoted to a large extent because the revenue realised would finance a portion of the operational costs thereby, relieving the budgetary constraint. Cost sharing would result in improvements in the quality of care if the resources generated internally by a hospital are ploughed back for improving the availability of drugs and equipment in that hospital.

16.3.4. Raising Revenue through Cost Sharing

A two-day workshop of District Surgeon and Specialists working in Secondary Level Hospitals was organised in May 1994. The workshop recommended, among other things, that in order to raise additional resources through Cost Sharing, at least one third of the beds in government run hospitals should be converted over time into paying general and special wards. Admission to general free wards might be restricted to those who are poor to prevent the non-poor from enjoying free services. As a step

towards this, one third of the proposed increase of 3500 beds in district, sub-district, and Taluka hospitals will be planned as special wards. The special wards then will account for 20 percent of total beds in these hospitals. A moderate charge of Rs 50 per day may be levied to recover a major part of the current average cost excluding staff salary, of servicing a bed per day, which is estimated at Rs 70. Some of the beds in special wards could be reserved for public sector, private sector and co-operative institutions located in the district against a fixed annual payment so that availability of special ward to their employees is assured. An attempt will be made to obtain administrative and political clearance for this from Government of Karnataka.

A nominal registration fee say of Rs. 2 for each outpatient and Rs 5 for inpatients could be introduced. The schedule of charges should be reviewed and should be related to cost of such charges. Waiving of charges should be on criteria other than income as declared by the patient, to prevent undue advantage taken by the non-poor.

There is also a potential for raising resources through a scheme of pre-paid health care plan through organisations or co-operatives which supply inputs for agriculture and dairy and also undertake collection, processing and marketing of produce. Workers in the organised sector could also be covered. The hospitals could also offer health insurance policies.

The fees for issuance of certificates need to be enhanced substantially. The charge for issuing physical fitness certificate should be raised from Rs 5 to Rs 100. Similar increases could be effected for other certificates.

The receipts from certificates can go up from Rs. 40 million to 800 million if the suggested charges are implemented. Creation of 3600 beds special wards of sub-district hospitals and charging Rs. 50 per day would yield over Rs. 50 million at 80 percent bed occupancy. Introduction of registration charges as indicated is expected to yield nearly Rs. 20 million at the current level of outpatients and inpatients treated in government hospitals.

It is proposed to set up a Working Group to assess the present arrangement, review the existing pattern of Cost Sharing, and suggest to Government a revised schedule consistent with the present needs.

16.3.5. Autonomous Institutions

The State has four Super Speciality institutions which provide high quality care, located in Bangalore. These institutions are:

1. Kidwai Memorial Institute of Oncology
2. Jayadeva Institute of Cardiology
3. The Indira Gandhi Institute of Child Health
4. The Sanjay Gandhi Accident and Rehabilitation Institute

These institutions have been "autonomous" and are not bound by Govt. regulations. They are managed by a Governing Body, which includes experts, the

Secretaries of Finance and Health besides the Health Minister and the Minister of Medical Education. The Chief Minister heads the Governing Council.

It is significant to note that apart from a nominal grant-in-aid towards salaries and some miscellaneous expenses received from the State Govt, these institutions have been structured to raise resources through cost sharing. The Kidwai and Jayadeva Institutions have been quite successful in cost sharing both for diagnostic as well as inpatient services. The internal resources generated by these two institutions are given below

Table 16.3.5.1. Internal Resources Generated by Kidwai and Jayadeva Institutions.

(Figures in Rs. millions)

Srl No.	Income	Jayadeva institute of Cardiology			Kidwai Memorial Institute		
		1989-90	1993-94	1994-95	1989-90	1993-94	1994-95
1	Cost Sharing	5.69	31.15	41.27	5.25	11.96	N.A
2	Grants	18.88	31.38	23.75	29.9	52.38	N.A
3	Other sources	1.62	18.94	9.14	9.56	2.77	N.A
4	Total Income	26.19	81.47	74.16	44.71	67.11	N.A

This kind of restructuring will enable the State Govt. to devote greater attention and resources to primary and secondary level health care. The entire revenue realised by the autonomous institutions through 'Cost Sharing' is retained by them and used for the upkeep and maintenance of the facilities.

16.3.6. Development Fund

Introduction of measures to augment resources will not automatically raise the level of infrastructure unless the concerned institution is in a position to reinvest a substantial portion on the hospital. Ideally, each secondary and tertiary level hospital should establish a "Development Fund" and open a Bank account where the collections from Cost Sharing would be remitted.

All hospitals should also be entitled to receive donations from philanthropic organisations and individuals, undertakings in the private and public sector etc. and credit to its "Development Fund". The money can then be used for undertaking civil works, purchase of equipment, drugs, hospital supplies, etc.

However, it may not be practicable for each hospital to open a bank account. It is therefore proposed to create a State Level Hospital Fund for which a separate major head would be opened. All amounts realised as receipts, from patients and other fees would be accounted for in this fund. Based on the remittances made, Health & Family Welfare Department would release, on a quarterly basis, the estimated collections during the quarter as an additionality to its own departmental budget.

Health and Family Department will set up at the District level, a District Hospital Development Committee with the Chief Executive officer, Zilla Panchayat as its Chairman. The Development Committee will be permitted to open a bank account

This committee would be entitled to receive donations from philanthropists individuals, public sector etc., and credit such donations to its bank account. Every quarter based on the amounts released from the State Level Fund, the Health and Family Welfare Department will release money to the District Hospital Development Committees in the form of grant-in-aid, based on Cost Sharing collected.

The District Committee will comprise the following members.

- | | |
|---|-------------------|
| 1. Chief Executive officer, Zilla Panchayat | Member |
| 2. District Surgeon | Member |
| 3. District Health & F.W. Officer | Member |
| 4. Lay-Secretary, District Hospital | Member, Secretary |

The amount received by the Development Committee both through donations and through grant-in-aid will be used for undertaking civil works, purchase of materials, drugs, hospital supplies etc., in respect of hospitals, based on collections made and the need of each institutions.

Delegation of Administrative and Financial Powers

Description of Powers	Directors/Addl. Directors		Joint Directors etc.		Deputy Directors etc.		Taluka MO etc.	
	Existing	Proposed	Existing	Proposed	Existing	Proposed	Existing	Proposed
1. To approve the list of candidates for training Radiographers, Health Inspectors and other Categories subject to the number of Candidates and rates of stipends fixed by the Government	Full Powers	Full Powers	Full Powers	Full Powers	-	-	-	-
2. (a) To depute the staff of the Maximum pay of whom and below for Service under local bodies under the foreign services rules K.C.S.R.s. to Commercial under takings. (In place of Rs. 2175, the current maximum pay of the related post i.e., Class-I Junior Scale/Grade is replaced).	Three Years	Three Years	Three Year (Non-Gazetted)	Three Year (Non-Gazetted)	-	-	-	-
(b) To Depute for Training within India, for Courses not exceeding Ninety Days (Both Gazetted Staff and Non-Gazetted Staff).	Full Powers	Full Powers	-	-	-	-	-	-
3. To Sanction the Deputation of Non-Gazetted staff on Temporary Duty within the state.	One year	One Year	Six Month (Tech. Staff)	Six months (Tech. Staff)	One Month	One Month	-	-
4. (a) To engage Teachers and other staff on Honorarium.	Full Powers	-	Full Powers	-	-	-	-	-

*For complete description of each category of officers see foot note at the end

Description of Powers	Directors/Addl. Directors		Joint Directors etc.		Deputy Directors etc.		Taluka MO etc.	
	Existing	Proposed	Existing	Proposed	Existing	Proposed	Existing	Proposed
(e) Maintenance of frogs, rabbits, dogs, rats, white rats and other animals required for experiments in Medical Colleges and other institutions.	Full Powers	-	Rs. 10,000, each time	Rs. 10,000 each time	Rs. 2500, each time	Rs. 5000, each time	-	-
(f) Supply of shoes to the inmates of Mental Hospital, TB & CD Hospital and Leprosy Institutions per year.	-	-	-	i) Rs. 150, for each pair of shoes per inmate. ii) Rs. 200 to inmates of Leprosy hospital per case per year.	-	i) Rs. 150, for each pair of shoes per inmate. ii) Rs. 200 to inmates of Leprosy hospital per case per year.	-	i) Rs. 150. for each pair of shoes per inmate. ii) Rs. 200 to inmates of Leprosy hospital per case per year.
g) Measures for control of Plague & other under the following heads: i) Construction & repairs of segregation camps & Hospitals. ii) Purchase & carriage of Medicines iii) Dietary Charges. iv) Disinfection charges. v) Bedding and clothing. vi) Other incidental expenditure in plague camps.	Full Powers	Full Powers	Rs. 5000	Rs. 10,000 each time.	Rs. 2,500	Rs. 5000 each time	-	Rs. 1000 each time.

Description of Powers	Directors/Addl. Directors		Joint Directors etc.		Deputy Directors etc.		Taluka MO etc.	
	Existing	Proposed	Existing	Proposed	Existing	Proposed	Existing	Proposed
6. To sanction the purchase of the following without reference to the Stores Purchase Department but following the purchase rules and purchasing from Govt., under takings wherever available:								
(a) Diet articles	Full Powers	Full Powers	Full Powers	Full Powers	Rs. 10,000 per annum	Rs. 10,000 per annum	Rs. 3,000 per annum	Rs. 3,000 per annum
(b) Linen, Bedding & Clothing	Full Powers	Full Powers	Full Powers	Full Powers	Rs. 50,000 per annum	Rs. 1 lakh per annum	Rs. 10,000 per annum	Rs. 10,000 per annum
(c) Utensils & crockery and other equipments items.	Full Powers	Full Powers	Rs. 25,000 per annum	Rs. 50,000 per annum	Rs. 10,000 per annum	Rs. 25,000 per annum	Rs. 3,000 per annum	Rs. 5,000 per annum
(d) Photographic materials / Exhibition materials.	Full Powers	Full Powers	Rs. 10,000 per annum	Rs. 20,000 per annum	Rs. 2,500 per annum	Rs. 10,000 per annum	Rs. 1,000 per annum	Rs. 1,000 per annum
(e) Medicines & Drugs not supplied in Medical Stores or Rate Contract and required urgently.	Rs. 20,000, each time	Rs. 10 lakhs per annum	Rs. 15,000 each time	-	Rs. 5,000 each time	Rs. 2 lakhs per annum	Rs. 2,500 each time	Rs. 1 lakh per annum.
(f) Instruments, furniture & other equipments required urgently to Colleges teaching Institutions and other institutions.	Rs. 40,000 each time	Rs. 10 lakhs per annum	Rs. 20,000 each time	Rs. 3 lakhs per annum	Rs. 2,500 each time	Rs. 2 lakhs per annum	Rs. 100 each time	Rs. 50,000 per annum (for repairs only).
(g) Herbs and other Pharmacy necessities	Full Powers	Full Powers	Rs. 10,000 each time	-	Rs. 500 each time	Rs. 5,000 each time	-	-
(h) Other items of Hospital necessities.	Full Powers	Full Powers	Rs. 10,000 each time	Rs. 1 lakh per annum.	Rs. 1,000 each time	Rs. 50,000 each time	-	-

Description of Powers	Directors/Addl. Directors		Joint Directors etc.		Deputy Directors etc.		Taluka MO etc.	
	Existing	Proposed	Existing	Proposed	Existing	Proposed	Existing	Proposed
(i). Glassware, Chemicals & Acids & other Laboratory necessities to colleges and other institutions.	Full Powers	Full Powers	Rs.10,000 each time	Rs.25,000 each time limited to Rs. 1 lakh per annum.	Rs.3,000 each time Limited to Rs.15,000 per annum	Rs.5,000 each time Limited to Rs.1 lakh per annum	-	-
7. To sanction expenditure on fixing replacement of parts and servicing or repairs of:								
(a) x-ray, Ultrasound, Endoscopy & other machines	Full Powers	Full Powers	Rs.50,000 each time	Rs.10 lakh each time	Rs.25,000 each time	Rs. 5 lakh per annum.	Rs.1,000 each time	Rs 10,000 per annum.
(b) Sterilisers, Microscopes & other equipments /Refrigerators.	Full Powers	Full Powers	Rs.10,000 each time	Rs.2 lakh per annum.	Rs.5,000 each time	Rs.1 lakh per annum.	Rs.1,000 each time	Rs.10000 per annum.
(c) Bedding / Clothing / Cots / Lockers / Equipments	Full Powers	Full Powers	Rs.2,000 each time	Rs.5 lakh per annum.	-	Rs.1 lakh per annum.	-	Rs.10,000 per annum.
(d) Urgent repairs of Buildings in respect of electrical/sanitation and water supply etc.	Full Powers	Full Powers	-	Rs.2 lakh per annum.	-	Rs.1 lakh per annum.	-	Rs.10,000 per annum.
(e) Clothes and Time Pieces	Full Powers	Full Powers	Full Powers	Full Powers	Rs.100, each time	Rs.1000, each time	Rs.100, each time	Rs.500, each time
8. To accept gifts & donation from Public or Instruments for institutions under the control of the Department.	Full Powers	Full Powers	Full Powers	Full Powers	Full Powers	Full Powers	Full Powers	Full Powers
9. To sanction expenditure out of poor funds of Hospitals.	Full Powers	Full Powers	Full Powers	Full Powers	Rs.500 each time	Rs.500 each time	Rs.50 each time	Rs.50 each time
10. To get forms etc., printed by Private Presses for those not supplied by Govt.. Press	Full Powers	Full Powers	Rs.10,000 each time	-	Rs.5,000 each time	Rs.10,000 each time limited to Rs. 1 lakh per annum.	-	Rs.10,000 per annum.

Description of Powers	Directors/Addl. Directors		Joint Directors etc.		Deputy Directors etc.		Taluka MO etc.	
	Existing	Proposed	Existing	Proposed	Existing	Proposed	Existing	Proposed
11	MCE Powers given To sanction subscription to daily newspaper.							
12.	Full Powers	Full Powers	Rs.10,000	(Proposed Full Powers to the extent of the powers to purchase these items)				
13.	Full Powers	Full Powers	Full Powers	Full Powers	Full Powers	Full Powers	-	-
14.	Full Powers	Full Powers	Full Powers	Full Powers	Full Powers	Full Powers	-	-
15.	Full Powers	Full Powers	Full Powers joint Director (Medical) & DJD, DH & FWS	-	-	-	-	-
16.	Full Powers to the extent of the powers to Purchase these items.	Full Powers	-	Full Powers	Full Powers	Full Powers	-	Full Powers for Linen & Mattress

Description of Powers	Directors/Addl. Directors		Joint Directors etc.		Deputy Directors etc.		Taluka MO etc.	
	Existing	Proposed	Existing	Proposed	Existing	Proposed	Existing	Proposed
17 To condemn books, instruments equipments, furniture, glassware etc.	-	Full Powers	-	Full Powers less than Rs.1 lakh each time.	-	Less than Rs. 10,000 each time	-	Less than Rs. 1000 each time.
18 Medical Journals (Library)	Full Powers	Full Powers	-	Full Powers	-	Full Powers	-	-
19 To depute staff for instruction Seminar, work shops, training or any course: (a) within the state (b) Outside the state within India.	Full power	Full Powers	-	Full Powers	-	Full Powers	-	-
20. Purchase of production of films 16 or 35 mm and Video films	Full Powers	Full Powers	-	-	-	-	-	-
21 Exhibition i.e./Mysore Dasara Major Exhibition programme:	Rs. 20,000 for Mysore Dasara Rs 10,000 for district level exhibitions	Rs. 5.0 lakhs each time.	-	3.00 lakhs per annum for purchase only. Rs.1 lakh per annum.	-	-	-	-
22. Printing of Forms/ Publication reports /Manual /guidelines.		Full Powers	-	-	-	-	-	-

Explanatory Notes:

The powers delegated to the Officers of Health & FW, Department and Medical Education Department and their Designators.

- A - Director of Health & Family Welfare Services/ Director of Medical Education/ Adl Director (FW & MCH)/Addl. Director (AIDS)/Addl. Director (Projects)/CMD/Addl. Director (KHSDP).
- B - Joint Director working as programme officers in the Directorate/ Divisional Joint Director/ Principal of Medical/Dental Colleges, Superintendent of teaching Hospitals/ Chief Admin. Officer/Director Minto)R.I. Ophthalmology, Joint Director, GMS/Joint Director, Vaccine Institute, Belgaum, Joint Director PHI Bangalore, Joint Director TB, Bangalore.
- C - Deputy Director/ Dist. Health & Family Welfare Officer/Dist. Surgeon/Dy.CMO/Senior Specialist)/Principal of Health & FW Training Centre/College of (Nursing)/Administrative Officers, Deputy Director (NMEP)/Deputy Director/Health Officer (SSA Unit)/Medical Officer (Leprosy Hospital)/Surgeon LRP/Deputy Director VDL Shimoga.
- D Taluk Level Medical Officers/Seniors Medical Officer/Specialist/Duty Medical Officer at taluk level/DLO DMO/DIO/Medical Officer, Dist. Health Laboratory/Medical Officer (FW&MCH)/Medical Officer (LIC)/Medical Officer (MTT)/District Training Officer.

Annexure 2

Population and Bed Availability by Taluka

Taluk	Population Thousands	Bed Strength *		Beds per	
		Existing	Proposed	Thousand Persons	
				Existing	Proposed
Anekal	252.2	38	72	0.151	0.286
Bangalore N&S	5266.3	3146	3327	0.597	0.632
Bangalore District	5518.5	3184	3399	0.577	0.616
Channarayana	272.8	114	114	0.418	0.418
Devanahalli	183.2	73	73	0.398	0.398
Doddaballapur	256.1	68	68	0.266	0.266
Hosakote	215.0	75	82	0.349	0.381
Kanakapura	360.9	83	83	0.230	0.230
Magadi	221.3	57	57	0.258	0.258
Nelamangala	163.9	42	80	0.256	0.488
Ramanagara	234.9	65	65	0.277	0.277
Bangalore Rural District	1908.1	577	622	0.302	0.326
Athani	403.8	94	116	0.233	0.287
Belgaum	713.9	785	785	1.100	1.100
Chikodi	515.2	108	165	0.210	0.320
Gokak	466.2	107	117	0.229	0.251
Hukeri	326.1	90	90	0.276	0.276
Khanapur	228.9	60	62	0.262	0.271
Parasgad	289.7	108	132	0.373	0.456
Ramdurg	214.7	72	72	0.335	0.335
Raybag	299.0	20	44	0.067	0.147
Sampgaon	328.6	121	145	0.368	0.441
Belgaum District	3786.1	1565	1728	0.413	0.456
Bellary	540.7	768	792	1.420	1.465
Hadagalli	160.8	46	66	0.286	0.411
Hagaribommanahalli	147.3	54	74	0.367	0.502
Harpanahalli	255.5	54	90	0.211	0.352
Hospet	341.5	128	128	0.375	0.375
Kudligi	239.6	94	162	0.392	0.676
Sandur	170.7	46	66	0.269	0.387
Siraguppa	206.7	60	80	0.290	0.387
Bellary District	2062.7	1250	1458	0.606	0.707
Aurad	223.4	92	112	0.412	0.501
Basavakalyan	262.0	72	86	0.275	0.328
Bhalki	237.1	109	141	0.460	0.595
Bidar	352.7	318	435	0.902	1.233
Homnabad	260.6	167	167	0.641	0.641
Bidar District	1335.9	758	941	0.567	0.704
Badami	271.5	104	104	0.383	0.383
Bagalkot	223.5	162	162	0.725	0.725
Basavana Bagevadi	274.4	62	102	0.226	0.372
Bijapur	500.4	428	432	0.855	0.863
Bilgi	125.9	14	38	0.111	0.302
Hungund	259.5	125	144	0.482	0.555
Indi	320.6	88	112	0.274	0.349
Jamkhandi	372.8	98	148	0.263	0.397
Muddebihal	231.9	98	142	0.423	0.612
Mudhol	219.6	56	80	0.255	0.364
Sindgi	297.2	88	108	0.296	0.363
Bijapur District	3097.3	1323	1572	0.427	0.508
Chikmagalur	271.6	303	438	1.116	1.613
Kadur	278.2	140	190	0.503	0.683
Koppa	86.3	96	96	1.113	1.113
Mudigere	137.5	127	163	0.924	1.186

Taluk	Population Thousands	Bed Strength *		Beds per Thousand Persons	
		Existing	Proposed	Existing	Proposed
Narasimharajapura	60.3	50	62	0.830	1.029
Sringeri	35.7	38	50	1.066	1.403
Tarikere	219.5	110	110	0.501	0.501
Chikmagalur District	1089	864	1109	0.793	1.018
Challakere	303.2	99	149	0.326	0.491
Chitradurga	349.5	445	528	1.273	1.511
Davanagere	558.1	992	992	1.778	1.778
Harihar	235.3	72	72	0.306	0.306
Hiriyur	248.2	112	138	0.451	0.556
Holalkere	194.5	46	66	0.237	0.339
Hosdurga	216.8	56	70	0.258	0.323
Jagalur	148.5	50	50	0.337	0.337
Molakalmuru	112.3	60	60	0.534	0.534
Chitradurga District	2366.4	1932	2125	0.816	0.898
Bantval	345.0	94	94	0.272	0.272
Beltangadi	225.8	73	73	0.323	0.323
Karkal	298.0	162	186	0.544	0.624
Kundapura	375.7	176	194	0.468	0.516
Mangalore	717.2	1077	1083	1.502	1.510
Puttur	253.4	108	144	0.426	0.568
Sulya	133.3	46	66	0.345	0.495
Udupi	529.6	337	346	0.636	0.653
Dakshina Kannada District	2878.1	2073	2186	0.720	0.760
Byadgi	119.8	52	52	0.434	0.434
Dharwad	206.5	194	274	0.940	1.327
Gadag	310.5	177	182	0.570	0.586
Hangal	218.9	92	92	0.420	0.420
Haveri	236.2	83	125	0.351	0.529
Hirekerur	205.6	60	84	0.292	0.408
Hubli	815.5	814	814	0.998	0.998
Kalghatgi	129.8	16	40	0.123	0.308
Kundgol	147.8	54	54	0.365	0.365
Mundargi	109.0	62	62	0.569	0.569
Nargund	92.9	30	36	0.323	0.388
Navalgund	173.0	42	54	0.243	0.312
Ranibennur	288.4	104	124	0.361	0.430
Ron	236.7	93	93	0.393	0.393
Savanur	132.5	48	68	0.362	0.513
Shiggaon	158.0	83	103	0.525	0.652
Shirhatti	171.0	56	74	0.327	0.433
Dharwad District	3752.1	2060	2331	0.549	0.621
Afzalpur	160.0	38	86	0.238	0.538
Aland	276.5	70	140	0.253	0.506
Chincholi	200.6	70	120	0.349	0.598
Chitapur	328.1	142	196	0.433	0.597
Gulbarga	555.3	726	726	1.307	1.307
Jevargi	200.0	50	74	0.250	0.370
Sedum	173.0	78	102	0.451	0.590
Shahapur	254.6	46	88	0.181	0.346
Shorapur	298.6	68	88	0.228	0.295
Yadgir	290.6	86	156	0.296	0.537
Gulbarga District	2737.2	1374	1776	0.502	0.649
Alur	84.5	50	50	0.592	0.592
Arkalgud	195.0	85	120	0.436	0.615
Arsikere	303.8	136	136	0.448	0.448
Belur	181.9	16	56	0.088	0.308
Channarayana	271.5	120	134	0.442	0.494
Hassan	337.2	385	565	1.142	1.676
Holenarasipur	169.4	136	152	0.803	0.897
Manjerabad	133.3	155	172	1.163	1.290
Hassan District	1676.6	1083	1385	0.646	0.826

* Includes beds in PHUs and PHCs

Taluk	Population Thousands	Bed Strength *		Beds per Thousand Persons	
		Existing	Proposed	Existing	Proposed
Madikeri	134.8	496	496	3.681	3.681
Somvarpet	193.0	301	301	1.559	1.559
Virajpet	188.8	525	547	2.781	2.897
Kodagu District	516.6	1322	1344	2.559	2.602
Bagepalli	155.7	58	58	0.372	0.372
Bangarapet	413.9	276	301	0.667	0.727
Chikballapur	180.6	74	114	0.410	0.631
Chintamani	251.6	151	177	0.600	0.704
Gauribidanur	256.3	158	158	0.617	0.617
Gudibanda	48.9	51	61	1.043	1.248
Kolar	303.2	361	444	1.191	1.464
Malur	185.6	44	62	0.237	0.334
Mulbagal	216.6	65	85	0.300	0.392
Sidlaghatta	179.6	83	83	0.462	0.462
Srinivasapur	174.2	98	98	0.563	0.563
Kolar District	2366.2	1419	1641	0.600	0.694
Krishnarajpet	237.6	58	58	0.244	0.244
Maddur	303.8	87	121	0.286	0.398
Malavalli	283.8	107	157	0.377	0.553
Mandya	411.6	379	469	0.921	1.139
Nagamangala	192.0	54	54	0.281	0.281
Pandavapura	176.4	62	62	0.352	0.352
Shrirangapattana	162.0	57	57	0.352	0.352
Mandya District	1767.2	804	978	0.455	0.553
Chamarajnagar	334.3	205	243	0.613	0.727
Gundlupet	210.1	145	218	0.690	1.037
Heggadadevanakote	232.4	104	104	0.448	0.448
Hunsur	238.6	150	200	0.629	0.838
Kollegal	327.1	176	226	0.538	0.691
Krishnarajanagara	233.4	159	199	0.681	0.852
Mysore	917.6	1557	1583	1.697	1.725
Nanjangud	348.1	123	193	0.353	0.554
Priyapatna	202.8	96	96	0.473	0.473
Tirumakudal-Narsipur	277.1	68	176	0.245	0.635
Yelandur	77.0	56	80	0.727	1.039
Mysore District	3398.6	2839	3318	0.835	0.976
Devadurga	191.6	50	84	0.261	0.438
Gangawati	347.1	98	166	0.282	0.478
Koppal	272.6	79	162	0.290	0.594
Kushtagi	205.7	60	80	0.292	0.389
Lingsugur	283.8	84	178	0.296	0.627
Manvi	291.7	78	98	0.267	0.336
Raichur	388.7	286	436	0.736	1.122
Sindhur	308.5	104	124	0.337	0.402
Yelbarga	212.4	96	120	0.452	0.565
Raichur District	2502.1	935	1448	0.374	0.579
Bhadravati	352.2	46	66	0.131	0.187
Channagiri	279.2	89	89	0.319	0.319
Honnali	216.9	24	48	0.111	0.221
Hosanagara	111.4	52	72	0.467	0.646
Sagar	192.2	156	156	0.812	0.812
Shikarpur	204.8	51	147	0.249	0.718
Shimoga	396.5	612	612	1.544	1.544
Sorab	176.2	35	67	0.199	0.380
Tirthahalli	142.2	170	176	1.195	1.238
Shimoga District	2071.6	1235	1433	0.596	0.692
Chiknayakanhalli	204.8	67	87	0.327	0.425
Gubbi	245.3	56	70	0.228	0.285
Koratagere	154.2	61	81	0.396	0.525
Kunigal	249.0	66	86	0.265	0.345
Madhugiri	260.1	92	142	0.354	0.546

Taluk	Population Thousands	Bed Strength *		Beds per Thousand Persons	
		Existing	Proposed	Existing	Proposed
Pavagada	225.4	69	89	0.306	0.395
Sira	270.3	82	102	0.303	0.377
Tiptur	207.4	109	153	0.526	0.738
Tumkur	451.3	369	439	0.818	0.973
Turuvekere	174.3	49	63	0.281	0.361
Tumkur District	2442.2	1020	1312	0.418	0.537
Ankola	98.3	32	70	0.326	0.712
Bhatkal	138.9	55	65	0.396	0.468
Haliyal	158.3	94	98	0.594	0.619
Honavar	156.9	52	72	0.331	0.459
Karwar	151.0	331	431	2.192	2.854
Kumta	144.3	54	74	0.374	0.513
Mundgod	80.7	64	88	0.793	1.090
Siddapur	98.6	46	46	0.467	0.467
Sirsi	164.6	85	129	0.516	0.784
Supa	50.4	38	58	0.754	1.151
Yellapur	71.3	50	50	0.702	0.702
Uttara Kannada District	1313.3	901	1181	0.686	0.899
Karnataka State	48585.7	28518	33287	0.587	0.695
Gulbarga Division	8637.9	4317	5711	0.500	0.661
Rest of the State	39947.9	24201	27664	0.606	0.702

Eighty eight beds have yet to be distributed in underserved areas of Gulbarga Division and 369 beds in the remining three Divisions.

Annexure 3

Norms for Hospital Services and Facilities

The State has built an impressive infrastructure of hospitals at various levels. However, there is a wide variation in the staffing pattern, availability of services, buildings, equipment, and technical personnel working at various levels in the hospitals. The Department of Health and Family Welfare, Government of Karnataka, organised a Workshop to review the norms for clinical services and infrastructure (buildings, equipment and staffing) for different levels of health care facilities. Senior clinicians, nursing and other technical personnel with working experience at different levels in the health care system (both public and private sectors) and programme managers from the Directorates of Health and Medical Education were invited to participate in the deliberations of the Workshop. The deliberations were enriched by participation of the representatives of the Governments of India, Punjab and West Bengal. The members of the World Bank Mission helped in guiding and providing proper direction to the workshop.

The objectives of the Workshop were to:

1. Review and recommend the range of clinical, technical, administrative and domestic services that should be provided at different levels in the secondary level and distinguish them from the services at primary and tertiary levels,
2. Based on the proposed range of services recommend the norms for infrastructure facilities such as buildings, equipment, materials and staffing that would be needed to provide services of acceptable quality.

In all three technical Working Groups were formed, viz.,

Group I: Medical;

Group II: Surgical;

Group III: Diagnostics

A High Level Review Committee reviewed the recommendations of the different working groups and finalised the norms for services, equipment, physical space and staffing to be adopted for all hospitals at the secondary level. These are presented in the following sections

Conditions and Procedures: Medical

Condition/Procedure	Secondary Level Hospitals			
	Community Hospital 30Beds	Community Hospital 50Beds	Sub-district Hospital 100 Beds	District Hospital >250 Beds
Upper Respiratory Infection	Manage & Treat	Manage & Treat	Manage & Treat	Manage & Treat
Lower Respiratory Infection	Treat Bronchitis & Pneumonia	Treat Bronchitis & Pneumonia	Treat referred severe cases	Treat referred severe cases
Asthma	Manage mild cases sympto- matically. Refer severe cases	Manage mild cases sympto- matically. Refer severe cases	Investigate & treat severe cases	Investigate & treat severe cases
Tuberculosis *	Do sputum, X-ray and ESR manage & treat	Do sputum, X-ray and ESR manage & treat	Do sputum, X-ray and ESR manage & treat	Do sputum, X-ray and ESR manage & treat
Surgical Procedures a) Pleural Aspiration b) Plural Biopsy c) Bronchoscopy	Manage & treat No No	Manage & treat No No	Manage & treat No No	Manage & treat Manage & treat Manage & treat
COPD	Supportive & symptomatic treatment then refer	Supportive & symptomatic treatment then refer	Investigate, manage & follow-up	Investigate, manage & follow-up
Pediatrics				
ARI	Treat & refer if no improvement	Treat & refer if no improvement	Investigate & Manage	Investigate & Manage
LRI	Mild: symptomatic treatment refer if no improvement	Mild: symptomatic treatment refer if no improvement	Investigate & Manage	Investigate & Manage
Childhood Asthma & Allergic Bronchitis	Without respiratory distress: manage	Without respiratory distress: manage	Without respiratory distress: manage	Without respiratory distress: manage
Tuberculosis *	Suspected cases to be referred (because of no sputum)	Without respiratory distress: manage	Investigate & treat	Investigate & treat

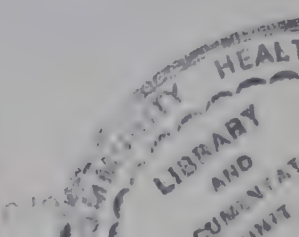
* This comes under National TB Control Programme (NTCP).

Condition/Procedure	Secondary Level Hospitals			
	Community Hospital 30Beds	Community Hospital 50Beds	Sub-district Hospital 100 Beds	District Hospital >250 Beds
Procedures				
a) Pleural Aspiration	Do	Do	Do	Do
b) Pericardial Tap	No	No	Do	Do
c) Foreign Body removal	Do simple cases	Do simple cases	Do simple cases	Do
d) Lumbar puncture	Do	Do	Do	Do
Malignancy	Symptomatic treatment & refer	Symptomatic treatment & refer	Symptomatic treatment & refer	Symptomatic treatment & refer
Rheumatic Fever*	Treat	Treat	Treat	Treat
Prophylaxis for Rheumatic fever	Treat	Treat	Treat	Treat
Essential Hypertension	Treat	Treat	Treat	Treat
Malignant Hypertension	Refer	Refer	Refer	Treat
Stable/Unstable/Post MI Angina	Refer	Refer	Refer	Refer to tertiary level if necessary
Acute MI	Treat & manage	Treat & manage	Treat & manage	Treat & manage
Rheumatic Heart Disease with Pregnancy	Refer. Depending on advise follow up at secondary level	Refer. Depending on advise follow up at secondary level	Refer. Depending on advise follow up at secondary level	Treat. Refer if necessary to tertiary level. Depending on advise follow up at secondary level
Congenital Heart Disease	Symptomatic treatment and refer	Symptomatic treatment and refer	Symptomatic treatment and refer	Symptomatic treatment and refer to Tertiary level
CCF	Symptomatic treatment and refer	Symptomatic treatment and refer	Symptomatic treatment and refer	Treat. If necessary refer to tertiary level
Pericardial Tapping	No	No	No	Do
Convulsion including Epilepsy	Treat & manage	Treat & manage	Treat & manage	Treat & manage
Coma	Initial treatment and refer	Initial treatment and refer	Initial treatment and refer	Initial treatment and manage. If no improvement refer to tertiary level
Encephalitis #	Symptomatic treatment	Symptomatic treatment	Symptomatic treatment.	Symptomatic treatment.
Meningitis	Symptomatic treatment	Symptomatic treatment	Symptomatic treatment. Refer if complications	Symptomatic treatment. Refer if complications

* Refer Rheumatic Heart Diseases to Tertiary level

+ If not treatable refer to Tertiary level

Notifiable disease



Condition/Procedure	Secondary Level Hospitals			
	Community Hospital 30Beds	Community Hospital 50Beds	Sub-district Hospital 100 Beds	District Hospital >250 Beds
Head Injuries	Initial Treatment. Observe & refer if necessary	Initial Treatment. Observe & refer if necessary	Investigate & manage	Investigate & manage
C.V.Accidents	Initial Treatment. Observe & refer if necessary	Initial Treatment. Observe & refer if necessary	Investigate & managr	Investigate & managr
Psychosis (a)	Mange & Refer	Mange & Refer	Mange & Refer	Mange & Refer
Neurosis	Mange & Refer	Mange & Refer	Mange & Refer	Mange & Refer
Mental Retardation	Mange & Refer	Mange & Refer	Mange & Refer	Mange & Refer
Drug Abuse & Alcoholism	Treat	Treat	Treat	Treat as Inpatient
Organic Brain Syndrome	Treat	Treat	Treat	Treat
Leprosy #	Treat & manage	Treat & manage	Treat & manage	Treat & manage
Pemphigus	Initiate treatment & refer	Initiate treatment & refer	Treat	Treat
Collagen Diseases	Refer	Refer	Refer	Investigate & treat
Skin Allergy	Treat	Treat	Treat	Treat
Sarcoidosis	Refer	Refer	Refer	Investigate & treat
Psoriasis	Treat	Treat	Treat	Treat
Neoplasm	Refer	Refer	Refer	Investigate & treat
STD	Treat	Treat	Treat	Treat
Blood Screening	Yes	Yes	Yes	Yes
HIV testing	No	No	Do	Do
Gastrointestinal Bleeding	Resucitation & conservative management if bleeding is minimum (about 100-200ml) with good vital sign. If bleeding is more than 500 ml refer for endoscopy		Diagnostic investigation & treatment Refer if necessary	Endoscopy. Treat & Manage
G.E & Dysentry	Treat & manage		Treat & manage	Treat & manage
Hepatitis	Less than one month duration: Treat (Steriods)		More than one month: Investigate & treat	
Hepatic Coma	Initial treatment & refer		Investigate, treat & manage	
Amcbiasis	Treat & managr	Treat & managr	Treat & managr	Treat & managr
Cholysysticis	Symptomatic treatment & refer		Investigate & treat	
Pancreatitis	Symptomatic treatment & refer		Iavestigate & manage (for theraputic endoscopy or surgery refer to Tertiary level	
Abdominal Tapping	Yes	Yes	Yes	Yes
Liver Biopsy	No	No	No	Yes

(a) If not under control with conventional psychiatric drugs refer for EEG.

Refer to Tertiary level for reconstructive surgery National Leprosy Control Programme (NLCP)

Condition/Procedure	Secondary Level Hospitals			
	Community Hospital 30Beds	Community Hospital 50Beds	Sub-district Hospital 100 Beds	District Hospital >250 Beds
Fiberoptic Endoscopy	No	No	Yes	Must
UTI	Symptomatic Treatment & refer		Investigate & Manage	
Acute Nephritis	Manage if no complication. Otherwise refer		Investigate & Manage	
Nephrotic Syndrome	Initiate treatment & refer for one month. If disease persists refer		Investigate & Manage	
Renal Failure	Initiate treatment & refer after stabilisation		Investigate & Manage. Refer if necessary	
Anaemia	Manage & treat. Refer if no improvement		Investigate and manage severe anaemia. Refer if necessary	
Leukaemia	Refer suspect cases		Investigate & manage. Refer if no improvement.	
Thalassemia	Give blood transfusion and refer		Treat & refer	
Procedures				
Bone marrow	No	No	Yes	Yes
Diabetes	Manage	Manage	Manage	Manage with complications
Neonatal				
Normal New Born	Refer	Refer	Manage	Manage
Premature >2Kg	Manage. Refer if any complications		Manage	Manage
< 2 Kg	Refer	Refer	Manage	Manage
Jaundice within 24 Hrs.	Treat & manage &/or refer	Treat & manage &/or refer	Investigate & manage	Investigate & manage
Convulsion	Initiate treatment and refer if not controlled		Diagnose & treat	
Poisoning	Treat		Treat	Treat
Physiotherapy treatment	No	No	Treat	Treat
Surgery				
Abscess including breast & perianal	Incision & drainage	Incision & drainage	Incision & drainage	Incision & drainage
Wound Debridment	Simple wounds	Simple wounds	Major & compound wounds	Major & compound wounds
Trauma & Life Support	Resuciate. Stabilise & refer	Resuciate. Stabilise & refer	Investigate & manage. if needed refer	Investigate & manage
Musculo Skeletal	Simple:manage Complicated: refer	Simple manage Complicated: refer	Manage. refer if necessary	Manage
Abdominal Injuries (Emergencies)	Stabilize & refer	Stabilize & refer	Manage	Manage
Abdominal Surgeries (Planned)	Refer	Yes. (Anaesthetist available)	Yes	Yes
Appendectomy	No	Yes	Yes	Yes
Hæmorrhoids	Refer	Yes (Anaesthetist available)	Manage	Manage
Anal Fissure	Manage	Manage	Manage	Manage

Conditions and Procedures: Surgical

Condition/Procedure	Secondary Level Hospitals			
	Community Hospital 30Beds	Community Hospital 50Beds	Sub-district Hospital 100 Beds	District Hospital >250 Beds
Surgery				
Acute Retention of Urine	Catheterise & refer	Catheterise & refer	Manage	Manage
Circumcision	Yes	Yes	Yes	Yes
Hydrocele	Yes	Yes	Yes	Yes
Hemorrhaphy	Refer	Yes	Yes	Yes
Urethral Dilatation	Refer	Refer	Yes	Yes
Rupture of Bladder & Urethra	Refer	Refer	Refer	Manage
Major Urological Procedures	Refer	Refer	Refer	Manage if necessary
Fracture Spine	Stabilize & refer	Stabilize & refer	Refer if necessary	Manage
Ophthalmology				
Eye * (a)	Removal of foreign bodies	Removal of foreign bodies	Management of corneal aberration, ulcer & cataract	Management of corneal aberration, ulcer & cataract + Glaucoma surgery
Dental	Conservative dentistry, tooth extraction, all types of fillings	Conservative dentistry, tooth extraction, all types of fillings	Conservative dentistry, tooth extraction, all types of fillings	All types of extractions, impactions & Jaw fractures
Gastro Enterology: Endoscopy	Refer	Refer	Sigmoidoscopy	Oesophago-gastroscopy, colonoscopy
Anaesthesiology	Care of airway equipment	Care of airway equipment Management of general & regional anaesthesia if possible	Management of general & regional anaesthesia	Management of general & regional anaesthesia
Thoracic				
Simple fracture ribs	Manage	Manage	Manage	Manage
Intercostal under-water seal drainage	Yes *	Yes *	Yes *	Yes*
Flail chest	Resuciate & refer	Resuciate & refer	Resuciate & refer	Manage with ventilatory support
Mediastinal injury	Resuciate & refer	Resuciate & refer	Resuciate & refer	Manage, refer if needs Thoractomy

* Covered under NPCB

(a) Corneal grafting, retinal diseases, vitreous surgery, intraocular foreign bodies: refer to Tertiary

Condition Procedure	Secondary Level Hospitals			
	Community Hospital 30Beds	Community Hospital 50Beds	Sub-district Hospital 100 Beds	District Hospital >250 Beds
Thoracic				
Acute Empyema	Manage by ICD	Manage by ICD	Manage by ICD	Manage by ICD
Chronic Empyema	Refer	Refer	Refer	Rib resection & drainage. Refer for decartication & resection
Thoracotomy	Yes, only in emergency	Yes, only in emergency	Both emergency & elective	Both emergency & elective
Thoracotom & Procedures #	Refer	Refer	Refer	Manage, refer if necessary
Foreign Bodies in the Oesophagus and Tracheo Bronchial Tree \$	Refer	Refer	Refer	Manage, refer if necessary
ENT				
Foreign bodies in nose & ears	Nose: remove Ear: refer	Nose & Ear: remove	Manage if ENT specialist available	Manage
Epistaxis	Manage	Manage	Manage	Manage
Tracheostomy	Yes	Yes	Yes	Yes
Peritonsillar abscess	Refer	Manage	Manage	Manage
Tonsillectomy	Refer	Refer	Manage	Manage
Mastoid Abscess	Refer	Refer	Manage if ENT specialist available	Manage
Head Injury a	Initiate, observe & refer	Manage, stabilize, refer for advanced management	Manage, stabilize, refer for advanced management	Manage, stabilize, refer for advanced management
OBG				
High Risk Pregnancies including APH, PET, Eclampsia	Early diagnosis & refer	Refer if necessary	Investigate & manage if possible	Manage
General Obstetric Procedures				
Tear & Episiotomies	Repair	Repair	Repair	Repair
Craniotomy (Dead foetus, Hydrocephalus)	Yes	Yes	Yes	Yes
Low Forceps Delivery	Yes	Yes	Yes	Yes
Vacuum Extraction	Yes	Yes	Yes	Yes
Breach Deliveries	Refer	Refer if complicated	Manage	Manage
Manual Removal of Placenta	Refer	Manage if Anaesthetist available	Manage	Manage
Inversion of the Uterus	Refer	Refer	Refer if complicated	Manage

* If trained in thoracic surgery for one or two months # Refer all major Thoracic procedures to tertiary level \$ refer to tertiary level a. Refer to tertiary level for CT Scan & advanced management

Condition/Procedure	Secondary Level Hospitals			
	Community Hospital 30Beds	Community Hospital 50Beds	Sub-district Hospital 100 Beds	District Hospital >250 Beds
OBG				
Rupture of Uterus	Refer	Refer	Manage	Manage
Threatened/or Incomplete Abortion	Conservative D & C	Conservative D & C	Conservative D & C	Conservative D & C
Ruptured Ectopic Pregnancy	Stabilize & Refer	Stabilize & Refer	Laparotomy	Laparotomy
Female Sterilization, IUD *	Yes. Arrange special programmes	Yes. Arrange special programmes	Yes. Arrange special programmes	Yes. Arrange special programmes
Vasectomy, Laproscopic Sterilization *	Yes. Arrange special programmes	Yes. Arrange special programmes	Yes. Arrange special programmes	Yes. Arrange special programmes
Manstrial Irregularities	Refer	Refer	Diagnosis & Management	Diagnosis & Management
Infertility	Refer	Refer	Diagnosis & Management	Diagnosis & Management
Planned Surgery for Prolapsed UT, DUB etc.	Refer	Refer	Manage	Manage
Cervical Erosion	Refer	Refer	PAP Smear Biopsy	PAP Smear Biopsy & manage
	Community Hospital 30Beds	Community Hospital 50Beds	Sub-district Hospital 100 Beds	District Hospital >250 Beds
Malignancies Refer to Tertiary level for Surgery & Radio Therapy	Refer	Refer	Diagnosis & refer	Diagnosis, manage & refer
Colposcopy & Hystoscopy	Refer	Refer	Refer	Manage, if possible
Reconstructive Surgery	Refer	Refer	Refer	Manage, if possible

* Covered under IPP, CSSN Programme and also MCH & FW Programmes

Diagnostic Services

Diagnostic Facility	Tests	PHC	Secondary Level Hospitals			
			Community Hospital	Sub-Dist	District	
Beds			30	50	100	>250
Clinical Pathology :						
1) Haematology	Blood Haemoglobin	Yes	Yes	Yes	Yes	Yes
	TC, DC, ESR, BT & CT	Yes	Yes	Yes	Yes	Yes
	Peripheral Blood Smear	No	No	No	Yes	Yes
	Absolute Eosinophil Count	No	Yes	Yes	Yes	Yes
	Platelet count and PT T	No	No	No	Yes	Yes
	Clot retraction Time	-	-	-	-	Yes
	PCV	-	-	-	Yes	Yes
	Blood Group and Rh Typing	Yes	Yes	Yes	Yes	Yes
	Blood Smear for Malaria / Microfilaria	Yes	Yes	Yes	Yes	Yes
	Reticulo cyte count	-	-	-	Yes	Yes
	LE Cell Phenomenon	-	-	-	-	Yes
	Blood Bank (Cross Matching) HIV, Hbs, Ag, VDRL, MP	Yes	Yes	Yes	Yes	Yes
2) Urine Analysis	Urine for Sugar, Alb, Micro, Bile salt and B.Pig	Yes	Yes	Yes	Yes	Yes
	Urine for Ketone Bodies	-	-	-	Yes	Yes
	Specific Gravity and Ph	-	-	-	Yes	Yes
3) Stool Analysis	For parasites (Ova and cyst)	Yes	Yes	Yes	Yes	Yes
	For occult blood	-	-	-	Yes	Yes
	Hangig drop (X V.Cho)	Yes	Yes	Yes	Yes	Yes
4) Semen Analysis	Morphology, reaction and count	-	-	-	Yes	Yes
5) CSF Analysis		-	-	-	Yes	Yes
6) Aspirated Fluid Analysis	(Pleural, peritoneal, etc.) Cell count & sedemention cytology malignment cells.	-	-	-	Yes	Yes
Pathology						
1) Pap smear		-	-	-	Yes	Yes
2) FNAC & Guides aspirated fluids.		-	-	-	-	Yes
3) Sputum Cytology	Malignant Cells	-	-	-	-	Yes
Haematology						
1) Bone marrow Aspiration		-	-	-	-	Yes
2) Immuno Haematology		-	-	-	-	Yes
3) Coagulation Disorders		-	-	-	-	Yes
4) Sickle cell Anaemia *		-	-	-	-	Yes
5) Thalassemia		-	-	-	-	Yes
Histopathology of All Specimens		-	-	-	-	Yes

* Particularly for the tribal population

Diagnostic Facility	Tests	PHC	Secondary Level Hospitals			
			Community Hospital	Sub-Dist	Dist-riect	
Beds			30	50	100	>250
			30 Beds	50 Beds	100 Beds	250+ Beds
1) Microbiology	Direct smear exam (AFB, ZN, KLB)	Yes	Yes	Yes	Yes	Yes
	C/S of all specimens (Blood, urine, Pus, etc..)	-	-	-	Yes	Yes
	Direct exam of specimen for fungal infections	-	-	-	Yes	Yes
	Bacteriological analysis of water	-	-	-	-	Yes
	Stool culture for V. Cholera	-	-	-	-	Yes
	Preparation and supply of proper transport media for all peripheral levels (VR, Cary Blair)	-	-	-	-	Yes
Serology	VDRL (By Kits)	-	Yes	Yes	Yes	Yes
	WIDAL	-	Yes	Yes	Yes	Yes
	Also, C-Reactive Proten, RA	-	-	Yes	Yes	Yes
	Brucella, Weillfelix, Coombs test HbsAg, HIV, Preg. Test, ANA and DNA	-	-	-	-	Yes
	Mantoux Test *	-	-	Yes	Yes	Yes
Biochemistry	Blood Sugar, BUN, Urea, Creatinine total & direct bilirubin	-	-	Yes	Yes	Yes
	CSF Analysis (Proteins, Chlorides & Sugar)	-	-	-	Yes	Yes
	LFT, S.Cholestrol, GTT, Lipid Profile	-	-	-	-	Yes
	Blood Gas analysis	-	-	-	-	Yes
	CPK, CPK-MB, SGOT, SGPT, Serum electrolytes, Acid phosphatase, Alk.phosphatase, Lithium carbonate level in blood	-	-	-	-	Yes
	Estimation of Residual Chlorine in drinking water at all levels	Yes	Yes	Yes	Yes	Yes
Cardiac Investigation	1) Stress-Test System	-	-	-	-	Yes
	2) E.C.G	-	Yes	Yes	Yes	Yes
Ophthalmology	Snellen's Test Chart	Yes	Yes	Yes	Yes	Yes
Audiometer		-	-	-	-	Yes
Mirco TIMP		-	-	-	-	Yes
		Yes	Yes	Yes	Yes	Yes
Radiology	Chest, skull, PNS, Bones, Spine, KUB and Abdomen	-	Yes	Yes	Yes	Yes

Diagnostic Facility	Tests	PHC	Secondary Level Hospitals			
			Community Hospital	Sub-Dist	Dist-riect	
Beds			30	50	100	>250
Contrast Radiology	Barium swallow, Barium meal, Barium enema, chole cystogram, IVP, HSG, Sialogram, sinogram, Myelography, Angiography	-	-	-	-	Yes
Endoscopy	Oesophagus, stomach, colon, Duodenum	-	-	-	-	Yes
	Bronchial tree and Cystoscopy	-	-	-	-	Yes
	Sigmoidoscopy	-	-	-	Yes	Yes
Ultrasonography	Ob.Gy. and abdomen portable	-	-	Yes	-	-
Linear/Sectoral	Ob.Gy. abdomen	-	-	-	Yes	Yes
	Ob.Gy., abdomen & cardiac	-	-	-	-	Yes

1. Blood Alcohol estimation, Chemical analysis of water (X Flourides), Diagnosis of KFD, Rota, JE infection, C/S of Tub.bacilli at Tertiary level only
2. Facilities for collection of appropriate specimens and dispatching to the referral lab. in a methodical way should be available at all centres

Staffing Norms for District and Sub-district Hospitals

Category	Grade	Bed Strength			
		30	50	100	>250
1. Surgeon	3170-5300	-	-	1	1
2. Dy. Civil Surgeon (R.M.O.)	2600-4575	-	1	1	1
3. Assistant Surgeon	2375-4450	4	5	8	21
4. Dental Assistant Surgeon	2375-4450	1	1	1	1
5. Nursing supdt. Grade-I	2150-4200	-	-	1	1
6. Nursing Supdt. Grade-II	1900-3700	-	-	1	5
7. Nursing Tutor	1900-3700	-	-	-	5
8. Staff Nurse	1520-2900	6	10	20	60
9. Physiotherapist	1520-2900	-	-	1	2
10. Pharmacist Grade I	1400-2675	-	1	1	6
11. Pharmacist Grade II	1280-2450	2	2	2	3
12. Sr. Lab Technician	1400-2675	-	1	1	2
13. Jr. Lab Technician	1280-2375	1	1	1	4
14. Lab Attendants	870-1520	1	1	1	2
15. Refractionist	1280-2375	1	1	1	1
16. Radiographer	1400-2675	-	-	-	2
17. X-Ray Technician	1280-2375	1	1	2	3
18. Dark Room Assistant	840-1340	1	1	1	1
19. Lay Secretary	1900-3700	-	-	1	1
20. Office Superintendent	1720-3300	1	1	1	2
21. Senior Assistant / FIDA	1280-2375	1	1	2	2
22. Junior Assistant / SIDA	1040-1900	1	2	2	3
23. Typist-cum-clerk	1040-1900	1	1	1	2
24. Medical Record Technician	1400-2675	-	-	-	2
25. Electrician	1400-2675	-	-	-	1
26. Carpenter	870-1520	-	-	-	1
27. Plumber	870-1520	-	-	-	1
28. Cook	870-1520	1	1	1	2
29. Helper to Cook	840-1340	2	2	2	4
30. Group D	840-1340	10	15	25	50
38. Driver	1040-1900	1	2	2	4
39. Psychiatrist	3300-5300	-	-	-	1
40. Clinical Psychologist	2375-4450	-	-	-	1
41. Psychiatric Social worker	1400-2675	-	-	-	1
42. ECG Technician	1280-2375	-	-	1	1
43. Social Worker (Skin VD)	1400-2675	-	-	-	2

Doctors by Specialization

Category	Bed Strength			
	30	50	100	>250
1. Physician	1	1	1	1
2. General Surgeon	1	1	1	1
3. Gynaecologist	1	1	1	1
4. Dental Surgeon	1	1	1	1
5. General Duty Doctor	1	-	-	3
6. Anaesthetist	-	1	1	1
7. Paediatrician	-	1	1	1
8. Ophthalmologist	-	1	1	1
9. Orthopedic Surgeon	-	-	1	2
10. ENT Surgeon	-	-	1	1
11. Skin Specialist	-	-	-	1
12. Psychiatrist	-	-	-	1
13. Radiologist	-	-	1	1
14. Pathologist	-	-	-	1
15. Forensic Expert	-	-	-	1
16. Microbiologist	-	-	-	1
17. Biochemist	-	-	-	1
Total	5	7	10	20

Furniture and Equipment Norms

Equipment	Unit Price Rs. 000s	Community Hospitals		Sub- district Hospitals	District Hospitals
Bed Strength		30	50	100	X>250
I. Imaging Equipment					
1. 500 mA X-Ray	950	-	-	-	(1)
2. 300 mA X-Ray	800	-	1	1	1
3. 100 mA X-Ray	430	1	1	1	1
4. 60 mA X-Ray (mobile)	150	-	-	1	1
5. Dental X-Ray	60	-	-	1	1
7. Ultra Sound Scanner (Linear Sector)	700	-	1	1	1
II. Electro Medical Equipment					
1. E.C.G.	17	1	1	1	3
2. Cardiac Monitors	25	-	-	-	3
3. Defibrillators	65	-	-	-	2
4. 12 channel ECG Stress Test Equipment		-	-	-	1
5. Audiometers	50	-	-	-	1
6. Baby Incubators	20	-	-	1	2
7. Phototherapy Unit	6	-	-	1	2
8. Endoscope Fibre Optic	200	-	-	-	1
9. Operating Microscopes	65	-	-	-	1
10. Cyro Surgery (Delux)	8	-	-	-	1
11 Foetal Monitor	6	-	-	-	1
12. Short wave Diathermy	20	-	-	1	1
13. Ventilators	75	-	-	-	1+1
14. Boyles Apparatus with flou tech	125	-	-	-	1
15. Boyles Apparatus without flou tech	60	-	-	1	1
16. Ophthalmoscope	5	-	-	1	2
17. Slit Lamp	21	-	-	-	1
18. Retino Scope	3	-	-	1	1
19. Perimeter	6	-	-	-	1
20. Emergency Resuscitation Kit	20	1	1	1	2
21. Baby Emergency Resuscitation Kit			1	1	2
22. Delee Mucous Asprator		20	30	60	100
23. Sigmoido Scope	2	-	-	1	1
24. Head Light	1	-	-	1	2
25. Pulse Air Tonometer	5	-	-	-	1
26. AMC Equipment (2 Monitors, 1 Ventilator, 1 Defibrillator, A/C)	250	-	-	-	1
27. Radiant Heater (4 Kw)	6	-	-	-	1
28. Cryo surgery (Basic)	5	-	-	-	1
29. Pulse Oxymeter	100	-	-	-	1
30. Blood Gas Analyser	450	-	-	-	1
III. Pneumatic, Hydraulic & Sterilization Equipment					
1. Dental Unit	28	1	1	1	1
2. Dental Chair	14	1	1	1	1
3. Air rotor	21	-	-	1	1
4. Operation Table (ordinary)	8	1	1	1	2
5. Operation Table (Hydraulic)	35	-	-	1	4
6. Autoclave HP (Horizontal)	120	1	1	1	2
7. Autoclave HP (Vertical)	30	1	1	1	2

Equipment	Unit Price Rs. 000s	Community Hospitals		Sub- district Hospitals	District Hospitals
Bed Strength		30	50	100	X>250
8. Autoclave with Burners 2 bin	6	1	1	-	-
9. Shadowless lamp (mobile)	8	1	1	2	6
10. O.T Lights (Shadowless)	45	1	1	2	6
11. Focussing lights (Mobile) Flurotic	1	1	1	1	1
12. Suction Apparatus (High Vacuum (MTPL)	8	1	1	1	4
13. Suction Apparatus (Electrical)	5	1	2	3	4
14. Foot Suction Apparatus	1	1	2	2	2
15. Vacuum Extractors	2	1	1	2	2
16. Instrument Sterilizer	3	3	5	10	20
17. Diathermy Machine (Electrical)	12	-	-	1	2
18. Gynaec electric cautery	1	1	1	2	4
19. Automist/Dehumidifier	5	1	1	2	3
20. Dental Lab (Bath, Motor, Lathe)	20	-	-	-	1
IV. Laboratory Equipment					
1. Microscopes (Binocular)	9	1	1	2	4
2. Chemical Balances	6	-	-	1	1
3. Simple Balances	1	1	1	1	1
4. Photo electric Colorimeter	8	-	1	1	1
5. Flame Cell Photometer	18	-	-	1	1
6. Spectro Photometer	22	-	-	-	1
7. Auto analyser	40	-	-	-	1
8. Micro Pipettes	5	-	-	-	1
9. Water Bath	3	1	1	1	1
10. Hot Air Oven	8	1	1	2	2
11. Lab. Incubators	8	-	-	1	1
12. Distilled Water stills	3	-	-	1	1
13. Centrifuges	4	1	1	2	3
14. Hot Plates	2	-	-	1	1
15. Rotor/Shaker	2	-	-	-	1
16. Counting Chamber	1	1	1	1	1
17. PH meter	15	-	-	-	1
18. Glucometer	6	1	1	1	1
19. Hemoglobin Meter	1	1	1	2	4
20. Microtom	12	-	-	-	1
21. HIV test kit		1	1	1	1
22. HBS AG kit		1	1	1	1
23. Lipid Analyser					1
24. Oven (Wax embedding)	8	-	-	-	1
25. Tissue Processor	70	-	-	-	1
26. Quick Test Kit for ASLO, Titre, ESR			2	4	10
27. Timer stop watch	0.7	1	1	1	1
28. Alarm clock	0.4	-	-	1	1
V. Refrigerator & A/C					
1. Refrigerators 300 ltrs.	20	1	1	2	4
2. A/C machines with Stabilizer	28	-	1	1	8
3. Water Coolers	15	1	1	1	2
4. Two body mortuary (Cold Storage)	100	-	-	-	2

Equipment	Unit Price Rs (000s)	Community Hospitals		Sub- district Hospitals	District Hospitals
Bed Strength		30	50	100	X>250
VI. Hospital Plants					
1. Generator 5 KVA	100	1			
2. Generator 15 KVA	150		1		
3. Generator 50 KVA	200			1	
4. Generator 62.5 KVA	250				2
5. Hot water Systems (Solar unit)	20	1	1	1	3
6. Pirolator	50	-	1	1	-
7. Incinerator 5KW	70	-	-	-	1
8. Incinerator 12 KW					
9. Incinerator 25 KW					
10. Incinerator 50 KW					
VII. Administration					
1. Typewriters	5	1	1	2	4
2. Photocopier	65	-	-	-	1
3. Cyclostyling Machine	20	-	-	1	1
4. Intercoms (15 lines)	80	-	-	1	-
5. Intercoms (40 lines)	200	-	-	-	1
6. Fax Machine	30	-	-	-	1
7. Telephone (External lines)	11	-	1	2	4
8. Library (Facility)	5	-	-	-	1
VIII. Transport					
1. Ambulance	350	1	1	1	2
IX. Surgical Instrument Packs					
1. D.D. & C	12	2	2	2	4
2. M.T.P.	11	2	2	2	4
3. Cervical Biopsy	0.7	1	1	2	4
4. Evacuation	0.55	1	1	1	2
5. Delivery	1	2	2	4	4
6. P.N. Strilization		-	2	4	4
7. Episotomy	0.7	2	2	4	4
8. Venesection	0.8	2	2	4	4
9. Copper T	0.4	-	-	-	-
10. Caesarean Section	2	-	1	2	4
11. Incision & Drainage	1	2	2	4	4
12. Vaginal Hysterectomy	3	-	-	2	4
13. Abdominal Hysterectomy	5	-	-	2	4
14. Vagotomy	2.5	-	-	1	2
15. Appendectomy	2.5	-	-	1	2
16. Hydrocele	1.2	-	-	1	2
17. G.J.	2.5	-	-	1	2
18. Hemorrhoidectomy	2.7	-	-	1	2
19. Suture Removal	0.4	1	1	2	4
20. Suturing Tray	0.9	1	1	2	4
21. L.P. Tray	0.45	1	2	3	8
22. Cholecystectomy	0.8	-	-	-	2
23. Thyroid	3.0	-	-	-	2
24. Catherization Tray	0.1	1	2	4	8
25. I.M. Nailing	1.0	-	-	1	2
26. S.P. Nailing	1.5	-	-	1	2
27. Dynamic Comression Plating	3.5	-	-	1	2

Equipment	Unit Price Rs (000)s	Community Hospitals		Sub- district Hospitals	District Hospitals
Bed Strength		30	50	100	X>250
28. A.M.Prosthesis	1.5	-	-	-	2
29. Dynamic Hip Screw Fixation	10.5	-	-	1	2
30. Fixation of Radius & Ulna	0.25	-	-	1	2
31. Cataract operation	5.8	-	1	2	4
32. Needling & Cataract Evacuation	6.0	-	-	2	4
33. Iridectomy	1	-	-	2	4
34. Indenclisis	2	-	-	2	4
35. Extra Capsular Operation	2.25	-	-	2	4
36. Chalazon	0.67	-	-	2	4
37. Tarsorrhaphy	0.86	-	-	2	4
38. Enucleation	1.0	-	1	2	4
39. Probing of Lacrymal Passages	0.2	-	1	2	4
40. D.C.R	0.35	-	-	2	4
41. Lacrymal Sac Extension	0.35	-	-	2	4
42. Trabeculectomy	3.3	-	-	2	4
43. Pterygium Excision	0.86	-	-	2	4
44. Entropion Correction	1.25	-	-	2	4
45. Foreign Body Cornea	0.55	-	-	2	4
46. Foreign Body in A.C.	1.35	-	1	2	4
47. Conjunctival Cyst Excision	0.9	-	-	2	4
48. Ear Examination	1.7	-	-	2	4
49. Mastoidectomy	10.	-	-	2	4
50. Macro ear Set Myringo, Tympano, Steppedo Plasty	23.0	-	-	2	4
51. Nasal Set SMR Septoplasty Polypectomy	9.8	-	-	2	4
52. D.N.S	7.0	-	-	2	4
53. Rhinoplasty	6.8	-	-	2	4
54. Adeno Tonsillectomy	7.5	-	-	2	4
55. Tracheostomy	0.4	1	1	2	4
56. Endo Laryngea Micro Surgery	16.5	-	-	-	2
57. ENT General	1.6	1	1	2	4
58. General Anesthesia Kit	4.0	-	1	2	4
59. General Orthopaedic Kit	20.0	-	1	2	4
60. Dental Kit	5.0	1	1	2	3
61. Urethral Dialtors (sets)				2	2
62. Skeletal Traction System			1	1	1
63. Colposcope					1
64. Laprascope				1	2
65. Hysteroscope					1
X. Minor Equipment					
1. X-Ray Viewing Box	1.5	1	2	5	10
2. Developing tanks (X-Ray)	0.75	1	1	2	4
3. Safe Light X-Ray Dark Room	0.25	1	1	1	2
4. Cassettes X-Ray	0.40	1	1	2	4
5. Intensifying Screen (various)	2.0	1	1	2	4
6. Lead aprons	2.6	1	1	2	4
7. Lead Protection Screen	7.5	1	1	1	2
8. Chest Stands X-Ray	0.9	1	1	1	2

Equipment	Unit Price Rs. 000s	Community Hospitals		Sub- district Hospitals	District Hospitals
Bed Strength		30	50	100	X>250
9. Stethoscope		2	2	2	4
10. B.P. Apparatus	0.5	4	6	10	30
11. BP Apparatus 43 size cups, infant, new born child		-	1	2	3
12. Transcutaneous Billirubinometr		-	1	2	3
13. Digital Thermometr		-	1	4	8
14. Weighing machine Adult	0.6	1	2	4	6
15. Weighing Machine Infant	0.6	1	2	4	6
16. Infra-red Lamps	0.4	1	1	2	3
17. Oxygen Cylinders	2.8	9	30	30	60
18. Nitrogen cylinders	2.8	-	4	6	12
19. Regulator & Flowmeter for medical Gas	1.5	1	5	10	20
20. Standing BP Apparatus		-	-	-	4
21. Ambu Bags	0.6	1	2	2	4-2
22. Hot Plate Domestic	1.2	1	2	3	6
23. Emergency Lamp	1.0	1	2	4	10
24. Fire Extinguishers	1.5	2	4	6	8
25. Laryngoscope	0.6	1	1	2	6
26. Baby Laryngoscope with 3 size blades		-	1	2	4
27. Otoscope	0.4	1	1	2	4
28. Universal Bone drill	1.2	-	-	1	2
XI. Furniture & Other Equipment					
1. Examination Table	1.4	4	6	10	20
2. Delivery Table	1.25	1	2	3	4
3. Foot steps	0.6	4	6	10	20
4. Bedside Screen	0.5	4	6	10	20
5. Revolving Stool	0.25	4	6	10	20
6. Arm Board Adult & Child	0.2	4	6	10	20
7. Saline stand	0.85	4	10	20	40
8. Wheel Chair	1.5	1	2	3	10
9. Emergency Recovery Trolley	5.5	-	1	2	4
10. Stretcher on Trolley	2.9	1	2	3	6
11. Oxygen Trolley	0.3	2	4	6	10
12. Height Measuring stand	0.6	1	1	2	4
13. Fowler Bed	5.2	-	-	4	8
14. Iron Cot	1.25	30	50	100	X
15. Baby Cot	1.8	-	2	10	20
16. Bedside Locker	1.25	30	50	100	X
17. Dressing trolley	1.65	1	2	4	8
18. Mayo's Trolley	0.9	1	2	4	8
19. Instrument Cabinet	4.25	1	2	4	10
20. Instrument Trolley	1.6	1	1	2	4
21. Linen Trolley	1.1	-	1	1	4
22. Kick Bucket	0.55	5	10	20	40
23. Attendant Stool	0.25	30	50	100	X
24. Traction System	0.5	-	-	2	4
25. Postmortem Table	4.0	-	1	1	2
26. Wash Basin	0.4	6	10	20	50

Equipment	Unit Price Rs. 000s	Community Hospitals		Sub- district Hospitals	District Hospitals
Bed Strength		30	50	100	X>250
27. Instrument Tray	0.5	4	6	15	30
28. Chairs	0.45	15	30	50	100
29. Wooden Tables	1.6	10	20	30	50
30. Steel Cupboard	2.0	4	10	15	50
31. Swab Rack (OT)	0.8	1	2	2	4
32. Fracture Table	6.6	-	-	1	2
33. Blood Donor Table Wooden	4.0	-	-	1	2
34. Mattress	1.2	40	60	120	1.1*X
35. Pillows	0.1	40	60	120	1.1*X
36. Wooden Benches	2.5	8	12	20	40
37. Patella Hammer	0.1	1	2	3	10
38. Tongue Depressor	0.03	5	10	15	30
39. Oxygen Mask	0.13	2	4	6	10
40. Torch Light	0.05	4	6	10	20
41. Medicine Cabinet	2.0	2	2	4	10
42. Side Rails	0.3	2	2	4	8
43. Bucket Galvanized	0.12	5	10	20	100
44. Bed Pans & Urinals	0.15	6	10	20	50
45. Bowls	0.10	6	10	20	50
46. Kidney Tray	0.08	6	10	20	50
47. Racks	0.25	4	10	20	40
48 Patient's Attendant Cots	1.0	-	-	10	20
49. Wooden Benches		10	15	30	60
50. Bedside Attendants Chair		5	10	20	50
51. Baby Mask Various Sizes			2	4	6
52. Pleural Aspiratio Set B-Way			3	6	10
53. Exchange Transfusion Set			-	3	6
54. Nebulizer			1	2	4

Equipment for Casualty Ward

Equipment	Unit Price	Number of Units	
	Rs. 000s	30/50/100	250
Imaging Equipment			
1. 300 mA X-Ray	800	0	1
2. 60 mA X-Ray (mobile)	150	1	1
Electro Medical Equipment			
1. Boyles Apparatus with flou tech	125	1	1
2. Boyles Apparatus without flou tech	60	1	1
3. Emergency Resuscitation Kit	20	1	1
4. Sigmoido Scope	2	1	1
Pneumatic, Hydraulic & Sterilization Equipment			
1. Operation Table (ordinary)	8	1	3
2. Operation Table (Hydraulic)	35	1	2
3. Autoclave HP (Horizontal)	120	1	1
4. Autoclave HP (Vertical)	30	1	1
5. Autoclave with Burners 2 bin	6	1	2
6. Shadowless lamp (mobile)	8	1	2
7. Focussing lights (Mobile) Flurotic	1	1	1
8. Suction Apparatus (Electrical)	5	2	2
9. Foot Suction Apparatus	1	2	2
10. Instrument Sterilizer	3	1	1
Refrigerator & A/C			
1. Refrigerators 165 ltrs.	10	1	1
2. A/C machines with Stabilizer	28	1	1
Hospital Plants			
1. Generator 5 KVA	100	0	1
Administration			
1. Tele Phone (External lines)	11	1	1
Surgical Instrument Packs			
1. Suture Removal	0.4	1	1
2. Suturing Tray	0.9	1	1
3. L.P. Tray	0.45	1	1
4. Chaterization Tray	0.1	1	1
5. Foreign Body Cornea	0.55	2	2
6. Foreign Body in A.C.	1.35	1	1
7. ENT General	1.6	1	1
8. General Anesthesia Kit	4	2	2
9. General Orthopaedic Kit	20	6	6
Minor Equipment2			
1. X-Ray Viewing Box	1.5	0	4
2. Developing tanks (X-Ray)	0.75	0	4
3. Safe Light X-Ray Dark Room	0.25	0	2
4. Lead aprons	2.6	0	4
5. Lead Protection Screen	7.5	0	2
6. Chest Stands X-Ray	0.9	0	2
7. B.P. Apparatus	0.5	4	4
8. Oxygen Cylinders	2.8	5	10

Equipment	Unit Price	Number of Units	
	Rs. 000s	30/50/100	250
Minor Equipment Continued			
9. Nitrogen cylinders	2.8	2	4
10. Regulator & Flowmeter for medical Gas	1.5	4	4
11. Ambu Bags	0.6	2	4
12. Emergency Lamp	1	4	4
13. Universal Bone drill	1.2	2	2
Furniture & Other Equipment			
1. Examination Table	1.4	2	2
2 Foot steps	0.6	6	6
4. Bedside Screen	0.5	6	6
5. Revolving Stool	0.25	10	10
5 Arm Board Adult & Child	0.2	10	10
6 Saline stand	0.85	10	10
8 Wheel Chair	1.5	4	4
8 Stretcher on Trolley	2.9	3	3
9. Oxygen Trolley	0.3	5	10
10 Iron Cot	1.25	14	14
11. Bedside Locker	1.25	14	14
12. Dressing trolley	1.65	4	4
13. Instrument Cabinet	4.25	4	4
14. Kick Bucket	0.55	6	6
15. Wash Basin	0.4	4	4
16. Chairs	0.45	10	10
17. Wooden Tables	1.6	2	2
19. Steel Cupboard	2	4	4
20. Swab Rack (OT)	0.8	4	4
21. Fracture Table	6.6	1	1
22. Blood Donor Table Wooden	4	1	1
23. Mattress	1.2	15	15
24. Pillows	0.1	15	15
25. Wooden Benches	2.5	10	10
26. Wooden Writing Table	1.6	8	8

Item	Unit Price Rs. 000s	Qty
A. Vehicle and Equipment for each Mobile Unit		
1. Ambulance	400.0	1
2. Oxygen cylinder "T" Type	3.0	1
3. Oxygen Therapy Unit	3.0	1
4. Suction Apparatus Foot Operated	12.0	1
5. Airway — Metal : Sizes 0,1,2,3,4	0.4	2
6. Laryngoscope with two blades	0.8	1
7. AMBU Bag	6.0	1
8. Thomas Splint — different sizes	0.6	1
9. Wooden splint lot	0.4	1
10 Other Miscellaneous items	1.2	lot
11. Wireless equipment	75.0	
B. Facilities at Base Hospital:		
1. Wireless equipment	75.0	

Space Norms

	Community		Sub-district		District	
	30/50 Beds		100 Beds		250 Beds	
	Rooms	Area	Rooms	Area	Rooms	Area
	No.	Sq.m.	No.	Sq.m.	No.	Sq.m.
OPD						
1. Entrance Hall (with Counters for enquiry, cash and records)	1	28.0	1	56.0	1	98.0
2. OPD Medical Record Room	1	14.0	1	28.0	1	35.0
3. Lavatories	2	17.5	2	28.0	4	70.0
4.1 (a) Consultation Rooms: Medical	1	17.5	1	17.5	1	17.5
4.1 (b) ECG Room	-	-	-	-	1	14.0
4.2 (a) Consultation Rooms: Surgical	1	17.5	1	17.5	1	17.5
4.2 (b) Treatment and Dressing /Minor Surgery	1	10.5	1	10.5	1	14.0
4.3 (a) Consultation Rooms: Gynaecology & Obstetrics	1	17.5	1	17.5	1	17.5
4.3 (b) Endoscopy Room with Toilets	-	-	-	-	1	20.0
4.4 (a) Consultation Rooms: Dental	1	17.5	1	17.5	1	17.5
4.4 (b) Dental Hygienist	-	-	-	-	1	14.0
4.4 (c) Dental Workshop	-	-	-	-	1	17.5
4.5 (a) Consultation Rooms: Paediatrics	-	-	1	17.5	1	17.5
4.5 (b) Treatment & Dispensing	-	-	-	-	1	14.0
4.5 (c) Immunization	-	-	1	14.0	1	17.5
4.6 (a) Consultation & Examination Eye Clinic	-	-	1	17.5	1	28.0
4.7 (a) Consultation & Examination: ENT	-	-	1	17.5	1	17.5
4.7 (b) Audiometric Room	-	-	-	-	1	14.0
4.8 (a) Consultation Rooms: Orthopaedic Clinic	-	-	1	17.5	1	17.5
4.9 (a) Consultation Rooms: Skin & STD	-	-	-	-	1	17.5
4.9 (b) Treatment Room	-	-	-	-	1	17.5
4.9 (a) Consultation Rooms: Psychiatry	-	-	-	-	1	17.5
4.9 (b) Social Worker	-	-	-	-	1	8.5
5. Waiting Rooms	2	14.0	3	21.0	4	28.0
6. Central Injection Room	1	9.0	1	9.0	1	14.0
7. Physiotherapy: Hall & Treatment	-	-	-	-	1	55.8
8. (a) Pathology: reception, Sample collection, waiting area	1	21.0	1	28.0	1	35.0
8. (b) Specimen disposal and sluice room	1	9.0	1	13.0	1	15.0
8. (c) Laboratory & Autoclave room	1	12.0	1	15.0	1	20.0
9. (a) Pharmacy	1	17.5	1	17.5	1	17.5
9. (b) Pharmacy Store	1	14.0	1	28.0	1	42.0
Rdiology / Radio Theraphy						
10. (a) Radiology Reception Counter	-	-	1	10.5	1	14.0
10. (b) Radiography	1	17.5	1	17.5	2	17.5
10. (b) Film Developing & Processing	1	4.5	1	4.5	1	4.5
10. (c) Contrast Study	-	-	-	-	1	4.5
10. (d) Store	1	4.5	1	4.5	1	4.5
10. (e) Radiologist Room	-	-	-	-	1	10.5
10. (f) Technician's Room	1	7.0	1	7.0	1	10.5
10. (g) Trolley bay	-	-	-	-	1	4.5

	Community		Sub-district		District	
	30/50 Beds		100 Beds		250 Beds	
	Rooms	Area	Rooms	Area	Rooms	Area
	No.	Sq.m.	No.	Sq.m.	No.	Sq.m.
10. (h) Switch room	-	-	-	-	1	4.5
10. (i) Janitors room	-	-	-	-	1	2.3
11. (a) Radio Therapy: Cobalt Therapy					1	46.5
11. (b) Radiotherapist's room					1	15.0
11. (c) Physicist room with lab			1	10.5	1	22.5
11. (d) Mould room					1	15.0
11. (e) Simulator Room					1	35.0
11. (f) Treatment Planning System					1	9.0
11. (g). CT Scan					1	21.0
11. (h) Ultra Sound room			1	10.5	1	10.5
Labour/OT						
16. Preparation Room with Toilet			1	10.5	1	14.0
17. (a) Labour Room: Clean	1	21.0	1	28.0	1	42.0
17. (b) Labour Room: Septic			1	15.0	1	21.0
17. (c) Labour Room: Eclampsia	-	-	-	-	1	14.0
17 (d) Baby Reception & Resusciation Area	1	7.0	1	10.5	1	10.5
18. OT Major	1	35.0	2	35.0	3	35.0
19. OT Minor	1	28.0	1	28.0	2	28.0
20. (a) Changing Room with Toilet: Doctors (M &F)	2	10.5	2	10.5	2	10.5
20. (b) Changing Room with Toilet: Other Staff (M &F)	2	10.5	2	10.5	2	10.5
21. Sterilization	1	10.5	1	10.5	2	10.5
22. Gas Cylinder Storage	1	10.5	1	10.5	1	10.5
23. Scrub Area	1	7.0	1	7.0	2	10.5
24. Recovery Room	1	14.0	1	21.0	2	28.0
25. (a) ICU (5 Beds)	-	-	-	-	1	52.5
25. (b) Nursing station					1	10.5
25. (c) Sluice Room					1	7.0
Wards						
26. Duty Doctors Room	-	-	1	17.5	2	17.4
27. Nurses Station	2	17.5	4	17.5	8	17.5
28. Wards (each with 12 beds and Toilet Block)	4	120.0	8	120.0	20	120.0
29. Special Ward	2	14.0	4	14.0	10	14.0
30. Treatment Room	4	10.5	8	10.5	20	10.5
31. Ward Store	4	10.5	8	10.5	20	10.5
Administration						
32. Medical Superintendent	1	17.5	1	17.5	1	17.5
33. Nursing Superintendent	1	10.5	1	10.5	1	10.5
34. Admin Officer	1	10.5	1	10.5	1	10.5
35. Staff	1	31.5	1	42	1	73.5
Hospital Services						
36. Central Sterilization						
36. (a) Washing & Cleaning	1	21.0	1	28.0	2	21.0
36. (b) Autoclave	1	14.0	1	17.5	1	21.0
36. (c) Sterile Store	1	14.0	1	17.5	1	28.0
37. Dietary Service						
37. (a) Cooking area	1	28.0	1	35.0	1	56
37. (b) Store	1	10.5	1	10.5	1	10.5

	Community		Sub-district		District	
	30/50 Beds		100 Beds		250 Beds	
	Rooms	Area	Rooms	Area	Rooms	Area
	No.	Sq. m.	No.	Sq. m.	No.	Sq. m.
38. Laundry						
38. (a) Dirty clothes receiving	1	10.5	1	14.0	1	21.0
38. (b) Clean Clothes Storage Area	1	10.5	1	14.0	1	21.0
39. General Store	1	21.0	1	35.0	1	60.0
Mortuary						
40. (a) Walk in Cooler	-	-	-	-	1	14.0
40. (b) Postmortem Area	1	14.0	1	17.5	1	21.0
40. (c) Doctors Office	-	-	-	-	1	17.5
Casualty (Optional at 30/50 bed hospitals)						
Examination and Treatment Cubicles	1	10.5	2	10.5	4	10.5
X- Ray Room with Dark Room	1	21.0	1	28.0	1	35.0
Operation Theatre	1	21.0	1	21.0	1	35.0
Instrument Sterilization	1	7.0	1	7.0	1	10.5
Scrub up	1	7.0	1	7.0	1	10.5
Dirty Wash	1	7.0	1	7.0	1	10.5
Resuscitation Room	1	21.0	1	35.0	1	63.0
Nursing Station with Store	1	7.0	1	10.5	1	10.5
Nurses Retiring Room	1	10.5	1	10.5	1	14.0
Duty Doctors Room	1	10.5	1	10.5	1	14.0

Code	District	Type	Centre	Phasing		Beds	Million Rupees				Staff Quarters							
				Phase	Group		Renovation		Expansion		Total	New Constr.		Existing		Total Qtrs.		
							Quarters	Hospital	Quarters	Hospital		Doctors	Nurses	Group D	Doctors		Nurses	Group D
Under World Bank Funding																		
202	Bangalore Rural	TLH	Devanhalli	1	3	30	0.00	0.56	1.66	0.70	2.92	2	2	2	0	2	2	2
1403	Kolar	TLH	Bagepalli	1	3	50	0.24	2.11	0.52	6.55	9.42	0	2	0	2	2	4	3
1404	Kolar	TLH	Bangarapet	1	3	35	0.17	1.35	0.40	1.38	3.30	0	1	1	2	1	2	2
1405	Kolar	TLH	Robertsonpet, ED	1	3	24	0.12	0.60	0.00	0.90	1.62	0	0	0				
1408	Kolar	SDH	Chikballapur	1	3	60	0.09	2.76	2.46	4.49	9.80	2	4	4	2	2	0	4
1410	Kolar	TLH	Chintamani	1	3	74	0.07	2.26	1.04	6.00	9.38	0	4	0	2	0	2	4
1412	Kolar	TLH	Gudibanda	1	3	40	0.24	1.39	0.26	1.51	3.40	0	1	0	2	3	2	4
1415	Kolar	TLH	Sidlaghatta	1	3	50	0.25	1.99	0.40	5.89	8.54	0	1	1	3	3	1	3
			Sub-Total				1.19	13.03	6.74	27.43	48.38	4	15	8	13	11	10	17
206	Bangalore Rural	TLH	Magadi	1	5	30	0.28	0.25	0.80	4.25	5.58	0	2	2	2	0	0	2
207	Bangalore Rural	TLH	Nelumangula	1	5	12	0.00	0.14	0.54	5.41	6.09	0	1	2	3	3	0	3
1208	Hassan	CHC	Harisave	1	5	20	0.05	0.54	0.28	0.17	1.03	0	0	2	1	2	0	1
1507	Mandya	TLH	Nagunangula	1	5	30	0.00	0.17	1.66	0.07	1.90	2	2	2	0	0	0	2
1905	Tumkur	TLH	Kunigal	1	5	32	0.00	0.12	0.28	3.92	4.32	0	0	2	2	8	0	2
			Sub-Total				0.32	1.21	3.56	13.82	18.92	2	5	10	8	13	0	10
709	Chikmagalur	SDH	Tarikere	1	11	50	0.21	0.98	0.14	7.66	8.99	0	0	1	2	4	1	2
710	Chitradurga	TLH	Holalkere	1	11	30	0.00	1.02	0.00	5.50	6.52	0	0	0	3	7	2	3
1801	Shumoga	DH	Shumoga	1	11	600	4.50	13.50	0.00	0.00	18.00	0	0	0	26	20	28	20
1802	Shumoga	TLH	Bhadravati	1	11	30	0.00	1.07	1.90	1.35	4.32	2	4	0	0	0	2	4
1803	Shumoga	TLH	Channarayana	1	11	50	0.70	0.78	0.52	1.62	3.62	0	2	0	3	2	2	3
1804	Shumoga	TLH	Honnali	1	11	6	0.52	0.43	0.28	0.00	1.23	0	0	2	2	2	0	2
			Sub-Total				5.93	17.78	2.84	16.13	42.68	2	6	3	36	35	35	38
703	Chikmagalur	CHC	Birur	1	13	50	0.00	1.12	0.80	2.43	4.34	0	2	2	4	2	0	4
1206	Hassan	TLH	Belur	1	13	10	0.00	1.70	0.50	11.90	14.10	0	2	0	2	2	2	4
1211	Hassan	TLH	Holenarsipura	1	13	100	0.00	0.85	0.26	6.89	8.00	0	1	0	5	4	7	5
			Sub-Total				0.00	3.66	1.56	21.22	26.44	0	5	2	11	8	9	13

Code	District	Type	Centre	Phasing	Beds		Million Rupees				Staff Quarters										
					Existing	Proposed	Renovation		Expansion		Total		New Constr.		Existing		Total Qtrs.				
							Quarters	Hospital	Quarters	Hospital	Doctors	Nurses	Group D	Doctors	Nurses	Group D	Doctors	Nurses	Group D		
1301	Kodagu	MCH	Madikeri (W&C)	1	17	210	210	0.00	1.88	6.82	6.05	14.75	6	12	8	2	0	0	8	12	8
1306	Kodagu	CHC	Gonikappal	1	17	50	50	0.00	3.66	0.26	5.37	9.29	0	1	0	2	3	5	2	4	5
1611	Mysore	TLH	Heggadadevankote	1	17	50	50	0.00	0.11	2.18	1.03	3.32	2	4	2				2	4	2
1612	Mysore	SDH	Hunsur	1	17	50	100	0.00	0.96	2.46	6.77	10.19	2	4	4	2	2	0	4	6	4
1617	Mysore	TLH	Piriyapatna	1	17	30	30	0.00	0.47	0.28	0.30	1.05	0	0	2	2	2	0	2	2	2
1620	Mysore	SDH	T.Narsipura	1	17	40	100	0.00	0.62	3.84	6.00	10.46	4	6	4	0	0	0	4	6	4
			Sub-Total					0.00	7.70	15.84	25.52	49.06	14	27	20	8	7	5	22	34	25
901	D. Kannada	MCH	Mangalore, Lady Goshen	1	22	260	260	0.85	0.00	6.26	1.22	8.33	6	12	4	2	0	4	8	12	8
902	D. Kannada	DH	Mangalore, Wenlock	1	22	705	705	0.08	2.26	0.00	0.00	2.34				0	0	0	0	0	0
904	D. Kannada	TLH	Bantval	1	22	30	30	0.19	1.96	0.71	4.02	6.88	1	0	2	1	3	0	2	3	2
905	D. Kannada	TLH	Belangadi	1	22	30	30	2.57	2.45	0.28	0.00	5.30	0	0	2	3	6	0	3	6	2
909	D. Kannada	CHC	Mulki	1	22	44	50	0.05	2.85	2.18	1.36	6.44	2	4	2	0	0	0	2	4	2
910	D. Kannada	SDH	Puttur	1	22	64	100	0.72	2.21	3.84	3.22	9.99	4	6	4				4	6	4
			Sub-Total					4.46	11.72	13.27	9.82	39.28	13	22	14	6	9	4	19	31	18
306	Belgaum	TLH	Khanapur	1	27	28	30	0.00	0.30	0.00	3.16	3.46	0	0	0	2	2	5	2	2	5
313	Belgaum	CHC	Kittur	1	27	6	30	0.00	0.38	0.14	0.30	0.82	0	0	1	3	5	1	3	5	2
2004	Uttar Kannada	CHC	Dandeli	1	27	46	50	1.98	1.14	0.00	0.00	3.12	0	0	0	2	9	10	2	9	10
2005	Uttar Kannada	TLH	Haliyal	1	27	30	30	0.00	0.57	1.66	0.00	2.23	2	2	2	0	0	0	2	2	2
2012	Uttar Kannada	TLH	Joida	1	27	10	30	0.00	0.24	0.00	0.00	0.24	0	0	0	2	2	2	2	2	2
2013	Uttar Kannada	TLH	Yellapur	1	27	30	30	0.00	0.85	1.66	0.00	2.51	2	2	2	0	0	0	2	2	2
			Sub-Total					1.98	3.48	3.46	3.46	12.38	4	4	5	9	18	18	13	22	23
308	Belgaum	TLH	Saundatti-Yellamma	1	29	50	50	0.00	0.58	0.00	2.91	3.49	0	0	0	2	6	10	2	6	10
309	Belgaum	CHC	Yargatti	1	29	6	30	0.00	0.30	0.00	0.30	0.60	0	0	0	3	6	2	3	6	2
310	Belgaum	TLH	Ramdurg	1	29	50	50	0.00	0.30	0.52	0.36	1.18	0	2	0	3	2	3	3	4	3
1001	Dharwad	DH	Dharwad	1	29	170	250	1.00	4.10	1.21	12.00	18.31	1	3	0	7	9	25	8	12	25
1014	Dharwad	TLH	Nargund	1	29	24	30	0.00	0.76	0.71	2.95	4.42	1	0	2	1	3	0	2	3	2
			Sub-Total					1.00	6.04	2.44	18.52	28.00	2	5	2	16	26	40	18	31	42
606	Bijapur	TLH	Basavanna Bagevadi	1	33	10	50	0.00	0.12	1.47	0.30	1.89	1	4	0	1	0	3	2	4	3
615	Bijapur	TLH	Muddebihal	1	33	30	50	0.00	1.38	0.00	0.52	1.90	0	0	0	3	5	6	3	5	6
			Sub-Total					0.00	1.50	1.47	0.82	3.79	1	4	0	4	5	9	5	9	9
			Phase I Total					14.88	66.00	49.71	136.44	267.02	41	89	64	110	132	127	151	221	191

Code	District	Type	Centre	Phasing		Beds		Million Rupees				Staff Quarters									
				Phase	Group	Existing	Proposed	Renovation		Expansion		Total	New Constr.		Existing		Total Qtrs.				
								Quarters	Hospital	Quarters	Hospital		Doctors	Nurses	Group D	Doctors	Nurses	Group D	Doctors	Nurses	
101	Bangalore	MCH	Bangalore, Vannivilas	2	1	605	605	2.15	16.00	0.00	0.00	18.15									
104	Bangalore	TLH	Anekal	2	1	18	50	0.65	0.72	0.71	0.65	2.73	1	0	2	1	7	0	2	7	2
107	Bangalore	TLH	Krishnanagarapuram	2	1	10	100	0.00	0.00	3.84	15.75	19.59	4	6	4	0	0	0	4	6	
204	Bangalore Rural	TLH	Hoskote	2	1	23	30	0.00	0.00	1.23	5.05	6.28	1	2	2	1	0	0	2	2	2
			Sub-Total					2.80	16.72	5.78	21.45	46.75	6	8	8	2	7	0	8	15	8
106	Bangalore	MCH	Bangalore, HISS W&C	2	4	120	120			0.00		0.00							0	0	0
108	Bangalore	TLH	Yellahanka	2	4	9	100	0.00	0.00	3.32	15.75	19.07	4	4	4	0	2	0	4	6	4
203	Bangalore Rural	SDH	Doddaballapur	2	4	50	50	0.00	1.44	2.18	0.62	4.24	2	4	2	0	0	0	2	4	2
1409	Kolar	CHC	Battahalli	2	4	30	30	0.00	0.90	0.00	0.00	0.90							0	0	0
1411	Kolar	TLH	Gauribidanur	2	4	110	110	0.34	2.42	2.18	6.69	11.62	2	4	2	2	2	2	4	6	4
1901	Tumkur	DH	Tumkur	2	4	330	400	0.00	2.48	6.08	0.00	8.56	4	13	7	4	3	5	8	16	12
1904	Tumkur	TLH	Kortagere	2	4	30	50	0.00	0.44	0.00	8.01	8.45	0	0	0	2	5	2	2	5	2
			Sub-Total					0.34	7.68	13.76	31.07	52.85	12	25	15	8	12	9	20	37	24
1205	Hassan	TLH	Arsikere	2	6	100	100	0.02	2.42	1.21	5.17	8.82	2	0	4	0	6	0	2	6	4
1902	Tumkur	TLH	Chiknayakanahalli	2	6	30	50	0.00	0.14	0.71	6.75	7.60	1	0	2	1	8	0	2	8	2
1903	Tumkur	TLH	Gubbi	2	6	16	30	0.00	0.79	0.28	0.59	1.66	0	0	2	2	7	0	2	7	2
1909	Tumkur	SDH	Tiptur	2	6	56	100	0.00	1.09	0.26	6.99	8.34	0	1	0	4	5	4	4	6	4
1910	Tumkur	TLK	Turuvekere	2	6	16	30	0.00	0.11	0.28	4.75	5.13	0	0	2	2	7	0	2	7	2
			Sub-Total					0.02	4.55	2.74	24.24	31.55	3	1	10	9	33	4	12	34	14
801	Chitradurga	DH	Chitradurga	2	8	389	450	0.00	0.69	5.07	13.88	19.64	5	8	6	3	8	6	8	16	12
803	Chitradurga	CHC	Nayakanahatti	2	8	0	30	0.00	0.24	0.28	6.15	6.67	0	0	2	2	4	0	2	4	2
804	Chitradurga	CHC	Parasurampura	2	8	30	30	0.00	0.59	0.14	0.18	0.91	0	0	1	3	7	1	3	7	2
902	Chitradurga	TLH	Challakere	2	8	30	50	0.00	0.33	0.69	1.62	2.64	1	1	0	1	3	4	2	4	4
903	Chitradurga	TLH	Molkalmuru	2	8	50	50	0.00	0.20	0.00	4.90	5.10	0	0	0	2	10	2	2	10	2
			Sub-Total					0.00	2.04	6.18	26.73	34.96	6	9	9	11	32	13	17	41	22

Code	District	Type	Centre	Phasing	Beds		Million Rupees			Staff Quarters											
					Phase	Group	Existing	Proposed	Renovation		Expansion	Total	New Constr.		Existing		Total Qtrs.				
									Quarters	Hospital			Doctors	Nurses	Group D	Doctors		Nurses	Group D		
705	Chikmagalur	TLH	Koppa	2	12	50	50	0.00	0.22	0.71	3.69	4.62	1	0	2	1	9	0	2	9	2
707	Chikmagalur	TLH	Narsimharajapura	2	12	18	30	0.00	0.69	0.28	3.12	4.09	0	0	2	2	2	0	2	2	2
708	Chikmagalur	TLH	Stringeri	2	12	18	30	0.00	0.19	1.66	7.14	8.99	2	2	2	0	0	0	2	2	2
906	D Kannada	TLH	Karkal	2	12	100	100	0.31	4.76	1.42	2.10	8.59	2	0	4	2	6	0	4	6	4
907	D. Kannada	CHC	Nitte	2	12	6	30	1.69	0.81	1.66	0.00	4.16	2	2	2	0	0	0	2	2	2
1805	Shimoga	TLH	Hosanagara	2	12	30	50	0.00	0.80	0.00	0.00	0.80	0	0	0	3	9	2	3	9	2
1811	Shimoga	TLH	Tirthahalli	2	12	100	100	0.00	1.39	1.38	3.83	6.59	2	2	0	2	4	4	4	6	4
			Sub-Total					2.00	8.87	7.11	19.87	37.84	9	6	12	10	30	6	19	36	18
1504	Mandya	CHC	K.M. Doddi	2	20	6	30	0.15	2.44	0.28	0.00	2.87	0	0	2	2	2	0	2	2	2
1506	Mandya	TLH	Malavalli	2	20	50	100	0.03	2.26	2.20	2.47	6.95	2	3	4	2	3	0	4	6	4
1604	Mysore	MCH	Mysore, SMT	2	20	52	50	0.00	0.05	0.97	0.30	1.32	1	1	2	1	3	0	2	4	2
1605	Mysore	MCH	NPC W& C	2	20	22	30	0.00	0.00	0.00	0.00	0.00									
1606	Mysore	MCH	VV Puram W&C	2	20	22	30	0.00	0.00	0.00	0.00	0.00									
1618	Mysore	CHC	Bannur	2	20	6	30	0.00	0.30	0.97	0.30	1.57	1	1	2	1	1	0	2	2	2
1619	Mysore	CHC	Talakad	2	20	6	30	0.00	0.32	0.00	0.50	0.82	0	0	0	2	4	4	2	4	4
			Sub-Total					0.18	5.36	4.42	3.57	13.53	4	5	10	8	13	4	12	18	14
908	D. Kannada	SDH	Kundapura	2	23	82	100	0.00	1.85	2.37	0.00	4.22	3	2	4	1	4	0	4	6	4
911	D Kannada	CHC	Shirva	2	23	21	30	0.00	2.12	1.66	0.52	4.30	2	2	2	0	0	0	2	2	2
913	D. Kannada	TLH	Udupi	2	23	124	124	0.78	3.16	3.41	1.49	8.84	3	6	4	1	0	0	4	6	4
914	D Kannada	MCH	Udupi, W&C	2	23	76	76	0.12	0.50	2.07	12.80	15.49	3	3	0	1	3	4	4	6	4
2003	Uttar Kannada	TLH	Bhatkal	2	23	40	50	0.00	1.50	0.00	0.00	1.50	0	0	0	2	4	4	2	4	4
			Sub-Total					0.90	9.13	9.51	14.80	34.34	11	13	10	5	11	8	16	24	18
1003	Dharwad	TLH	Byadgi	2	25	30	30	0.05	1.18	0.00	2.22	3.45	0	0	0	2	3	2	2	3	2
1007	Dharwad	TLH	Hangal	2	25	30	30	0.40	1.59	0.52	0.18	2.68	0	2	0	3	0	2	3	2	2
1008	Dharwad	SDH	Haveri	2	25	58	100	0.41	1.53	0.00	2.13	4.07	0	0	0	4	7	8	4	7	8
1016	Dharwad	MCH	Ranibennur	2	25	30	30	0.00	0.80	1.66	1.21	3.67	2	2	2	0	0	0	2	2	2
1017	Dharwad	TLH	Ranibennur	2	25	30	50	0.00	0.31	2.18	3.68	6.17	2	4	2	0	0	0	2	4	2
2011	Uttar Kannada	SDH	Sirsi	2	25	56	100	0.00	2.32	0.43	2.88	5.63	1	0	0	3	6	5	4	6	5
			Sub-Total					0.86	7.73	4.79	12.29	25.67	5	8	4	12	16	17	17	24	21

Code	District	Type	Centre	Planning		Beds		Million Rupees				Staff Quarters								
				Phase	Group	Existing	Proposed	Renovation	Hospital	Quarters	Expansion	Hospital	Total	New Constr.	Existing	Total Qtrs.				
302	Belgaum	TLH	Athni	2	32	28	50	0.00	0.25	2.18	2.69	5.12	2	4	2	0	0	2	4	2
312	Belgaum	SDH	Bailhongal	2	32	50	50	0.00	0.17	0.28	0.30	0.75	0	0	2	3	4	0	3	4
607	Bijapur	TLH	Bilgi	2	32	6	30	0.00	0.59	0.57	0.08	1.24	1	0	1	1	4	1	2	4
612	Bijapur	SDH	Jankhandi	2	32	50	100	0.00	0.37	1.38	0.37	2.12	2	2	0	2	4	4	4	6
613	Bijapur	CHC	Rakkavi Banahatti	2	32	30	30	0.00	0.16	0.28	0.30	0.74	0	0	2	2	2	0	2	2
616	Bijapur	CHC	Talkota	2	32	30	30	0.00	0.70	0.00	0.16	0.87	0	0	0	5	3	2	5	3
617	Bijapur	CHC	Mahalingpur	2	32	6	30	0.00	0.12	0.57	0.30	0.99	1	0	1	1	2	1	2	2
618	Bijapur	TLH	Mudhol	2	32	30	30	0.00	0.23	0.43	5.80	6.46	1	0	0	1	2	6	2	2
			Sub-Total					0.00	2.59	5.69	10.00	18.29	7	6	8	15	21	14	22	27
			Phase II Total					7.09	64.68	59.98	164.03	295.78	63	81	86	80	175	75	143	256
812	Chitradurga	TLH	Hosdurga	3	7	36	50	0.00	0.29	0.00	4.55	4.84	0	0	0	2	5	3	2	5
1906	Tumkur	SDH	Madhugiri	3	7	50	50	0.00	0.04	1.32	0.31	1.67	0	4	2	2	0	0	2	4
1907	Tumkur	TLH	Pavagada	3	7	30	50	0.00	0.49	0.00	3.28	3.77	0	0	0	3	5	4	3	5
1908	Tumkur	TLH	Sira	3	7	30	50	0.00	0.19	0.28	0.44	0.91	0	0	2	2	6	0	2	6
1909	Chitradurga	TLH	Hiriyur	3	7	74	100	0.00	0.48	0.71	0.00	1.19	1	0	2	3	6	2	4	6
			Sub-Total					0.00	1.49	2.31	8.58	12.38	1	4	6	12	22	9	13	26
1009	Dharwad	TLH	Hirekerur	3	10	26	50	0.26	0.96	1.06	1.34	3.61	0	3	2	2	1	0	2	4
1806	Shimoga	SDH	Sagar	3	10	100	100	0.12	1.23	0.28	0.00	1.63	0	0	2	4	10	2	4	10
1807	Shimoga	TLH	Shikarpur	3	10	28	50	0.54	0.96	0.28	0.00	1.78	0	0	2	2	4	0	2	4
1808	Shimoga	CHC	Sralkoppa	3	10	6	30	0.00	1.13	0.14	0.00	1.27	0	0	1	2	6	1	2	6
1809	Shimoga	TLH	Sorab	3	10	18	50	0.00	0.46	2.18	4.59	7.23	2	4	2			2	2	4
1810	Shimoga	CHC	Kannangi	3	10	24	30	0.33	0.37	0.71	0.00	1.40	1	0	2	1	3	0	2	3
2010	Uttar Kannada	TLH	Siddapur	3	10	30	30	0.00	0.59	0.86	0.00	1.45	2	0	0	0	3	4	2	3
			Sub-Total					1.24	5.69	5.51	5.93	18.37	5	7	11	11	27	7	16	34

Code	District	Type	Centre	Phasing		Beds		Million Rupees				Staff Quarters									
				Phase	Group	Existing	Proposed	Renovation		Expansion		Total	New Constr.		Existing		Total Qtrs.				
								Quarters	Hospital	Quarters	Hospital		Doctors	Nurses	Group D	Doctors		Nurses	Group D		
1201	Hassan	DH	Hassan	3	15	344	500	1.80	5.78	3.57	0.90	12.05	3	5	7	5	15	5	8	20	12
1203	Hassan	TLH	Arkalgud	3	15	30	50	0.03	1.55	1.49	1.44	4.51	1	3	2	1	1	0	2	4	2
1207	Hassan	TLH	Channarayapatna	3	15	46	50	0.00	4.31	1.32	3.59	9.22	0	4	2	2	0	0	2	4	2
1209	Hassan	CHC	Dudda	3	15	6	30	0.16	0.46	1.02	0.00	1.64	2	0	2	0	2	0	2	2	2
1210	Hassan	CHC	Halli Mysore	3	15	14	30	0.01	0.50	0.75	0.00	1.25	1	0	2	1	2	0	2	2	2
1503	Mandya	TLH	Krishnarajpet	3	15	30	30	0.16	2.89	0.80	0.00	3.85	0	2	2	2	0	0	2	2	2
1614	Mysore	TLH	Krishnarajanagara	3	15	80	100	0.00	0.38	1.64	0.62	2.64	2	3	0	2	3	6	4	6	6
1615	Mysore	CHC	Saligrama	3	15	10	30	0.03	0.22	0.14	0.37	0.75	0	0	1	2	2	1	2	2	2
Sub-Total								2.18	16.07	10.73	6.92	35.91	9	17	18	15	26	12	24	43	30
912 D.	Kannada	TLH	Sulya	3	16	30	50	0.93	2.40	2.18	0.00	5.52	2	4	2				2	4	2
1204	Hassan	CHC	Konanur	3	16	15	30	0.03	0.48	0.22	0.00	0.72	0	0	2	2	3	0	2	3	2
1302	Kodagu	DH	Madikeri	3	16	200	200	0.00	6.47	7.68	39.04	53.19	8	12	8				8	12	8
1303	Kodagu	CHC	Kushalnagar	3	16	50	50	0.00	0.59	1.23	6.88	8.70	1	2	2	1	2	0	2	4	2
1304	Kodagu	CHC	Sanivarsanthe	3	16	30	30	0.00	0.82	0.28	0.00	1.10	0	0	2	2	2	0	2	2	2
1305	Kodagu	TLH	Somvarpet	3	16	120	120	0.03	0.11	1.60	2.74	4.48	0	4	4	4	2	0	4	6	4
1307	Kodagu	CHC	Kutta	3	16	28	30	0.00	1.19	0.71	3.17	5.07	1	0	2	1	3	0	2	3	2
1308	Kodagu	CHC	Polibetta	3	16	40	50	0.02	0.93	1.23	0.45	2.62	1	2	2	1	2	0	2	4	2
1309	Kodagu	CHC	Sidapura	3	16	40	50	0.11	1.14	1.64	1.39	4.28	2	3	0	2	1	3	4	4	3
1310	Kodagu	TLH	Virajpet	3	16	240	240	0.00	8.61	2.68	10.95	22.24	2	7	0	6	5	16	8	12	16
Sub-Total								1.11	22.73	19.45	64.62	107.91	17	34	24	19	20	19	36	54	43
1603	Mysore	DH	Mysore, ED	3	19	50	50	0.00	0.15	2.18	0.30	2.63	2	4	2	0	0	0	2	4	2
1609	Mysore	TLH	Gundulpet	3	19	50	50	1.80	5.18	0.28	0.58	7.83	0	0	2	2	9	0	2	9	2
1610	Mysore	CHC	Kabbahalli	3	19	7	30	0.10	1.67	1.23	1.55	4.55	1	2	2	1	0	0	2	2	2
1621	Mysore	TLH	Yelandur	3	19	6	30	0.13	0.93	0.97	3.13	5.16	1	1	2	1	1	0	2	2	2
Sub-Total								2.03	7.93	4.66	5.55	20.17	4	7	8	4	10	0	8	17	8
109	Bangalore	DH	Bangalore, ED	3	21	128	128	0.00	3.84	0.00	0.00	3.84									
201	Bangalore Rural	TLH	Channapatna	3	21	100	100	0.00	1.24	3.84	5.96	11.04	4	6	4	0	0	0	4	6	4
205	Bangalore Rural	TLH	Kanakapura	3	21	50	50	0.00	0.64	0.26	8.70	9.60	0	1	0	3	3	4	3	4	4
208	Bangalore Rural	TLH	Ramanagaram	3	21	50	50	0.14	0.11	2.18	0.00	2.43	2	4	2	0	0	0	2	4	2
Sub-Total								0.14	5.83	6.28	14.66	26.91	6	11	6	3	3	4	9	14	10

Code	District	Type	Centre	Phasing		Beds		Million Rupees				Staff Quarters									
				Phase	Group	Existing	Proposed	Renovation		Expansion		Total	New Constr.		Existing		Total Qtrs.				
								Quarters	Hospital	Quarters	Hospital		Doctors	Nurses	Group D	Doctors	Nurses	Group D	Doctors	Nurses	
1006	Dharwad	CHC	Akki Alur	3	26	30	30	0.17	1.02	0.14	1.91	3.23	0	0	1	2	3	1	2	3	2
1010	Dharwad	DH	Hubli	3	26					0.00		0.00							0	0	0
1011	Dharwad	TLH	Kalghatgi	3	26	6	30	0.00	0.92	0.00	4.45	5.37	0	0	0	3	5	6	3	5	6
1012	Dharwad	TLH	Kundgol	3	26	30	30	0.36	1.60	0.14	1.46	3.56	0	0	1	2	2	1	2	2	2
1020	Dharwad	SDH	Savanur	3	26	30	50	0.26	1.22	0.14	1.94	3.57	0	0	1	2	5	1	2	5	2
1021	Dharwad	TLH	Shiggaon	3	26	30	50	0.43	1.11	0.14	1.04	2.72	0	0	1	3	10	1	3	10	2
1022	Dharwad	CHC	Lakshmeshwar	3	26	25	30	0.10	0.69	0.00	1.56	2.35	0	0	0	4	2	2	4	2	2
2008	Uttar Kannada	CHC	(Tibetan) Mundgod	3	26	50	50	0.00	0.00	0.00	0.00	0.00						0	0	0	0
2009	Uttar Kannada	TLH	Mundgod	3	26	6	30	0.00	0.18	1.66	3.60	5.44	2	2	2	0	0	0	2	2	2
			Sub-Total					1.33	6.74	2.22	15.96	26.25	2	2	6	16	27	12	18	29	18
301	Belgaum	DH	Belgaum	3	30	740	740	0.00	0.55	0.00	13.84	14.39	0	0	0	8	26	22	8	26	22
303	Belgaum	TLH	Chikodi	3	30	13	50	0.00	0.26	1.21	0.00	1.47	1	3	0	1	1	3	2	4	3
304	Belgaum	CHC	Nipani	3	30	10	30	0.00	1.04	0.28	3.50	4.82	0	0	2	3	2	0	3	2	2
305	Belgaum	TLH	Gokak	3	30	40	50	0.00	0.81	0.78	6.83	8.42	0	3	0	5	1	5	5	4	5
306	Belgaum	TLH	Hukeri	3	30	30	30	0.00	0.15	0.00	0.30	0.45	0	0	0	2	2	8	2	2	8
311	Belgaum	TLH	Raybag	3	30	6	30	0.00	0.30	0.00	0.39	0.69	0	0	0	2	7	3	2	7	3
			Sub-Total					0.00	3.11	2.27	24.86	30.24	1	6	2	21	39	41	22	45	43
601	Bijapur	DH	Bijapur	3	34	396	400	0.00	1.26	6.43	6.98	14.67	5	10	12	3	6	4	8	16	10
610	Bijapur	SDH	Indi	3	34	50	50	0.00	0.21	0.28	0.07	0.56	0	0	2	2	9	0	2	9	2
611	Bijapur	CHC	Tadavalgla	3	34	6	30	0.00	0.25	0.97	3.51	4.73	1	1	2	1	1	0	2	2	2
614	Bijapur	CHC	Kalgi	3	34	6	30	0.00	0.47	0.57	0.41	1.45	1	0	1	1	2	1	2	2	2
619	Bijapur	TLH	Sindgi	3	34	30	50	0.00	0.14	0.80	0.00	0.94	0	2	2	2	2	0	2	4	2
			Sub-Total					0.00	2.33	9.05	10.97	22.35	7	13	19	9	20	5	16	33	20
			Phase III Total					8.04	71.93	62.48	158.04	300.49	52	101	100	110	194	109	162	295	20
1401	Kolar	DH	Kolar	4	2	317	400	0.00	8.13	4.27	9.93	22.34	3	5	12	5	11	0	8	16	11
1406	Kolar	TLH	Robertsonpet, KGF	4	2	140	150	0.00	3.97	6.02	0.80	10.79	6	10	6	0	0	0	6	10	0
1407	Kolar	TLH	Robertsonpet, W&C	4	2	85	100	0.00	2.46	2.42	3.63	8.50	2	6	0	2	0	15	4	6	1
1413	Kolar	TLH	Malur	4	2	32	50	0.20	2.19	0.00	1.16	3.55	0	0	0	3	4	7	3	4	
1414	Kolar	TLH	Mulabagal	4	2	30	50	0.27	1.81	0.00	2.34	4.42	0	0	0	6	6	3	6	6	
1416	Kolar	TLH	Srinivaspur	4	2	74	50	0.15	1.56	0.95	1.20	3.86	1	2	0	1	2	2	2	4	
			Sub-Total					0.62	20.13	13.66	19.06	53.46	12	23	18	17	23	27	29	46	4

Code	District	Type	Centre	Phasing		Beds	Million Rupees				Staff Quarters										
				Phase	Group		Renovation	Expansion	Total	New Constr.		Existing		Total Qtrs.							
										Quarters	Hospital	Quarters	Hospital	Doctors	Nurses	Group D	Doctors	Nurses	Group D		
				Existing	Proposed																
805	Chitradurga	CHC	Bhramasagara	4	9	8	30	0.00	1.01	1.14	1.89	4.04	2	0	2	0	4	0	2	4	2
806	Chitradurga	TLH	Sirigere	4	9	30	30	0.00	0.75	0.00	0.97	1.72	0	0	0	3	6	2	3	6	2
807	Chitradurga	MCH	Davangere	4	9	100	100	0.01	2.29	1.42	10.38	14.10	2	0	4	2	6	0	4	6	4
808	Chitradurga	SDH	Davangere	4	9	900	850	0.00	8.20	4.32	5.92	18.44	4	10	0	8	16	24	12	26	24
809	Chitradurga	TLH	Harihara	4	9	50	50	0.00	1.36	2.18	4.86	8.40	2	4	2	0	0	0	2	4	2
813	Chitradurga	TLH	Jagalur	4	9	50	50	0.00	0.46	0.00	4.00	4.46	0	0	0	2	8	2	2	8	2
			Sub-Total					0.02	14.08	9.06	28.02	51.17	10	14	8	15	40	28	25	54	36
702	Chikmagalur	DH	Chikmagalur (W&C)	4	14	88	100	0.53	1.98	1.42	3.28	7.20	2	0	4	2	10	0	4	10	4
701	Chikmagalur	DH	Chikmagalur	4	14	177	300	0.30	0.58	2.69	22.27	25.84	3	0	10	5	23	2	8	23	12
704	Chikmagalur	TLH	Kadur	4	14	50	100	0.06	1.05	2.35	6.12	9.58	3	3	2	1	3	2	4	6	4
706	Chikmagalur	TLH	Mudigere	4	14	64	100	0.00	1.28	2.46	1.10	4.84	2	4	4	2	2	0	4	6	4
1202	Hassan	TLH	Alur	4	14	30	30	0.01	1.50	1.66	1.47	4.64	2	2	2	0	0	0	2	2	2
1212	Hassan	SDH	Sakleshpur	4	14	133	150	0.05	2.51	2.65	3.75	8.96	3	2	6	3	8	0	6	10	6
			Sub-Total					0.95	8.90	13.23	37.99	61.06	15	11	28	13	46	4	28	57	32
1501	Mandya	DH	Mandya	4	18	310	400	0.20	7.06	6.15	28.35	41.76	5	10	10	3	6	2	8	16	12
1505	Mandya	TLH	Maddur	4	18	40	50	0.00	1.81	1.66	3.57	7.04	2	2	2				2	2	2
1508	Mandya	SDH	Pandavapura	4	18	50	50	0.05	1.70	0.00	0.00	1.75	0	0	0	2	9	4	2	9	4
1509	Mandya	TLH	Shrirangapatna	4	18	30	30	0.01	0.85	1.66	6.00	8.52	2	2	2	0	0	0	2	2	2
1601	Mysore	MCH	Mysore, Cheluvamba	4	18	390	400	0.00	0.22	9.28	2.88	12.38	8	16	12	0	0	0	8	16	12
			Sub-Total					0.26	11.64	18.75	40.80	71.45	17	30	26	5	15	6	22	45	32
1608	Mysore	TLH	Chamarajnagar	4	19	112	150	0.14	1.35	4.12	5.76	11.37	4	6	6	2	4	0	6	10	6
1613	Mysore	TLH	Kollegal	4	19	100	150	0.02	2.05	5.16	2.00	9.23	4	10	6	1	0	0	5	10	6
1616	Mysore	SDH	Nanjangud	4	19	30	100			0.00		0.00							0	0	0
			Sub-Total					0.16	3.40	9.28	7.76	20.60	8	16	12	3	4	0	11	20	12
2001	Uttar Kannada	DH	Karwar	4	24	300	400	0.00	3.39	7.38	0.00	10.77	6	12	12	2	4	0	8	16	12
2002	Uttar Kannada	TLH	Ankola	4	24	12	50	0.00	0.53	0.92	0.00	1.45	0	3	1	2	1	1	2	4	2
2006	Uttar Kannada	TLH	Honnavar	4	24	30	50	0.98	0.42	0.43	0.00	1.83	1	0	0	1	4	2	2	4	2
2007	Uttar Kannada	SDH	Kunta	4	24	30	50	0.00	0.86	2.18	0.00	3.04	2	4	2	0	0	0	2	4	2
			Sub-Total					0.98	5.20	10.91	0.00	17.09	9	19	15	5	9	3	14	28	18

Code	District	Type	Centre	Phasing	Beds	Million Rupees				Staff Quarters							
						Renovation		Expansion		Total	New Constr.		Existing		Total Qntrs.		
						Quarters	Hospital	Quarters	Hospital		Doctors	Nurses	Group D	Doctors		Nurses	Group D
Phase	Group	Existing	Proposed	Quarters		Hospital		Doctors		Nurses		Group D		Total Qntrs.			
				Quarters	Hospital	Doctors	Nurses	Group D	Doctors	Nurses	Group D	Doctors	Nurses	Group D			
+	28	114	114	0.09	1.53	1.11	2.48	5.21	1	1	3	3	5	1	4	6	4
+	28	45	50	0.07	0.85	2.18	3.19	6.29	2	4	2				2	4	2
+	28	30	30	0.04	0.89	0.40	1.86	3.19	0	1	1	2	1	1	2	2	2
+	28	18	30	0.00	0.62	0.40	6.62	7.64	0	1	1	2	1	1	2	2	2
+	28	30	30	0.00	0.75	1.66	1.25	3.66	2	2	2	0	0	0	2	2	2
+	28	30	50	0.47	0.97	0.80	1.47	3.71	0	2	2	3	2	0	3	4	2
+	28	17	30	0.46	1.21	0.14	1.35	3.16	0	0	1	3	6	1	3	6	2
				1.14	6.81	6.69	18.22	32.86	5	11	12	13	15	4	18	26	16
				0.00	0.94	0.00	0.16	1.10	0	0	0	4	2	2	4	2	2
				0.08	0.58	0.97	1.01	2.64	1	1	2	1	1	0	2	2	2
				0.00	0.00	0.86	16.26	17.12	2	0	0	4	12	12	6	12	12
				0.14	0.75	0.00	0.32	1.22	0	0	0	2	6	2	2	6	2
				0.00	0.33	1.49	0.14	1.96	1	3	2	1	1	0	2	4	2
				0.22	2.59	3.32	17.89	24.03	4	4	4	12	22	16	16	26	20
				4.33	72.75	84.90	169.74	331.71	80	128	123	83	174	88	163	302	211
				34.34	275.35	257.07	628.25	1195.00	235	399	373	383	675	399	618	1073	772
				</													

Annexure 5

Standard Drug List for Govt. Hospitals

Therapeutic Category	Drug Description	Ph.poea	L/S
Injections			
Antibacterial	1. Benzethene Pencillin 12 Lakhs	IP	F
	2. Chloromycetine - Chloramphenicol	IP	F
	3. Crystalline Penicillin 10 Lakhs	IP	T
	4. Crystalline Penicillin 20 Lakhs	IP	T
	5. Ampicillin 500 mg.	IP	T
	6. Metronidazole	IP	F
	7. Procaine penicilline (4 Lakhs)	IP	F
	8. Streptomycine (1 gm)	IP	T
	9. Strepto penicillin 0.5 gm single dose	IP	T
	10. Ciprofloxacin 100 ml	USP	T
	11. Omnatax 500 mg, 1000 mg - Cefotaxime 250mg per vial	USP	F
	12. Garamycin 80 mg. - Gentamicin 40mg/ml	IP	T
	13. Gentamicin 40mg/ml	IP	T
	14. Benzyl Penicillin ; 5lacU ; 10 lacU	IP	T
	15. Ampicillin 250mg	IP	T
	16. Procaine Penicillin 20lac U	IP	F
Antiamoebic	1. Metronidazole	IP	F
Analgesics	1. Ketorol - Ketorolac tromethomine 30mg/ml		T
	2. Baralgin - Analgin 500mg, Pitofenone H Cl 8mg, Fempiverinium bromide 0.02mg	BP	F
	3. Diclofenac Sodium		F
	4. Analgin 500mg/ml, 30ml	NFI	F
	5. Analgin 0.5gm with Benzaphene	BP	F
	6. Pentazocine lactate 30mg/ml	IP	T
Anti-inflammatory	1. Betamethasone 4 mg./ml.	IP	T
	2. Dexamethasone	IP	T
	3. Hydrocortizone Sodium Succinate (EFCORLIN) 100 mg	BP	T
	4. Diclofenac Sodium		F
Anti-convulsants	1. Diazepam	IP	F
	2. Phenobarditone Sodium (Luminal) 200 mg ampoules	IP	T

Therapeutic Category	Drug Description	Ph.poea	L/S
Anti-convulsants	1. Diazepam	IP	F
	2. Phenobarditone Sodium (Luminal) 200 mg ampoules	IP	T
Adrenergic	1. Adrenaline lin 1000 , 1ml	IP	T
	2. Dopamine Hcl 40mg; 5ml		
	3. Mephenteramine 30mg/ml	BP	T
Antihyperten-sives	1. ISOPTIN ampoules - Verapamil Hcl 5mg, 2ml		
	2. Lasix - frusemide 10mg/ml	IP	T
Anti - cholinergics	1. Atropine Sulphate 0.5mg/ml	IP	T
Anti - choliesterase	1. Atropine Sulphate 0.5mg/ml	IP	T
Antidiabetics	1. Insulin - Plain 10 ml vial , 40IU/ml	IP	T
	2. Insulin - Lente 10 ml vial ,Zn suspen.	IP	F
	3. Human insulin - Human actrapid		T
	4. Human insulin - Human mixtard		T
Anti - histaminic	1. Chlorpheniramine Maleate 10mg/ml	BP	F
Antacids	1. Ranitidine 50mg/ml	USP	F
Anti - coagulants	1. Heparin 5000 IU/ml, 5ml	IP	T
Antidote	1. P ₂ am (2-Pyridine Aldoxine Meth-odide 25 mg 20 ml)	IP	T
	2. Atropine Sulphate 0.5mg/ml	IP	T
Antisera / Vaccines	3. A S V (Anti snake Venom Serum)	IP	T
	4. Tetvac ampoule (0.5 cc)	IP	F
	3. Anti Rabic Vaccine 30ml	IP	T
Antiemetics	1. Metaclopropamide Hcl 5mg/ml	IP	F
Broncho-dilators	1. Aminophylline 2.5% inj. IV	IP	T
	2. Deriphyllin - Etofyllin 169 4mg, Theophyllin 50.6mg, per 2ml		T

Therapeutic Category	Drug Description	Ph.poea	L/S
Electrolyte replenishers	1. Calcium Gluconate 500mg	IP	F
	2. Normal Saline 0.9% , 540ml	IP	T
	3. Potassium Chloride 15%	USP	F
	4. Sodium Bicarbonate 7.5%, 25ml	IP	T
Fluid electrolyte replenishers	1. Dextrose 5%	IP	T
	2. Fructodex (10 Per cent)- Fructose sol 5% in Dextran		F
	3. Dextrose Saline 540 ml		F
	4. Haemaccel (450 ml) - polymer from degraded gelatin 3.5mg , Na+ 145mEq/l, K+ 5.1mEq/l, Ca++ 12.5mEq/l, Cl- 145mEq/l & sterile distilled water to 100 ml ; made isotonic with polypeptides		T
	5. Ringer lactate 540 ml	IP	F
	6. Dextrose 25 % , 50 %	IP	F
Diuretics	1. Lasix - frusemide 10mg/ml	IP	T
	2. Mannitol 20 %	IP	T
Haematinics	1. Imferon FI2 - Iron dextran equivalent 50mg elemental iron , Vit.B12 500mcg, folic acid 2.5mg , per ml	USP	F
Hemostatics	1. Botrophase - aqueous. soln. of Hemocoagul		T
Hormones	1. Hydroxy Projesterone 250mg/ml	BP	F
Pharmacological aid	1. Water for injection , 5ml	IP	F
Skeletal Msc. relaxant	1. Suxamethonium chloride 50mg/ml	USP	T
Smooth Msc. relaxant	1. Valathamate bromide 8mg/ml	USP	T
Sedative / hypnotics	1. Diazepam 10 mg/ml , 2ml	IP	F
	2. Phenobarditone Sodium (Luminal) 200 mg ampoules	IP	T
Uterine stimulants	1. Methyl ergometrine 0.2mg/ml	IP	T
	2. Oxytocin 5IU /ml	IP	T

Therapeutic Category	Drug Description	Ph.poea	L/S
Vasopressor	1. Mephenteramine 30mg/ml	IP	T
Vitamins	1. Vit. 'C' (500 mg)	IP	F
	2. Vitamin B1 33mg, B6 33mg , in 3ml	NFI	F
	3. Neurobian - Vit.B1 100mg, B6 100mg, B12 1000mcg , per 3ml inj. ;3ml amp.		F
Capsules/Tablets			
Antibacterial	1. Cap. Ampicillin - 250 mg, 500 mg	IP	F
	2. Cap. Chloromycetine :250 mg	IP	F
	Chlorampheni-col, 500 mg - Chloramphenicol	IP	T
	3. Ciprofloxacin 500 mg, 250 mg	USP	T
	4. Cap. Tetracycline 250 mg, 500 mg	IP	F
	5. Cap. Rifampicin 150 mg, 450 mg	IP	F
	6. Tab. Septran D. S. - Trimethoprim + Sulphamethoxazole	IP	F
	7. Tab. Norflaxcin 400 mg	USP	F
	8. Metronidazole	IP	F
	9. Erythromycine Esteolate 250 mg	IP	F
	10. Furazolidine 100mg	IP	F
	11. Amoxicillin 400mg	IP	T
	12. Sulphamethoxazole 400mg	IP	F
Anti amoebic	1. Diiodohydroxy Quinoline	IP	F
	2. Metronidazole	IP	F
	3. Chloroquine 250mg	IP	F
	4. Iodo Chlorohydroxy quinoline	IP	F
Anti giardial	1. Tab. Furazolidine (100 mg)	IP	F
	2. Metronidazole 400mg	IP	F
Antihelminthic	1. Tab. Mebendazole & Almith - 400 mg	IP	F
	2. Mebendazole 100mg	IP	F
Anti malarial	1. Chloroquine 250mg	IP	F
Anti-tubercular	1. Tab. Ethambutal 600 mg, 800 mg	IP	F
	2. Tab INH 300 mg - Isoniazid	IP	F
	3. Tab. Pyrazinamide 750 mg	IP	F
	4. Cap. Rifampicin 150 mg, 450 mg	IP	F
Anti leprotics	1. Cap. Rifampicin 150 mg, 450 mg	IP	F

Therapeutic Category	Drug Description	Ph.poea	L/S
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Analgesics	1. Analgin 500 mg	IP	F
	2. Aspirin 150 mg, 300 mg	IP	F
	3. Indomethacin 25mg	IP	F
	4. Paracetamal 500 mg	IP	F
	5. Brufen 200 mg, 400 mg - Ibuprofen NSAID	IP	F
	6. Diclonac Sodium - Diclofenac Sodium NSAID		F
Antipyretics	1. Aspirin 150 mg, 300 mg	IP	F
	2. Indomethacin 25mg	IP	F
	3. Paracetamal 500 mg	IP	F
Anti - inflammatory	1. Aspirin 150 mg, 300 mg	IP	F
	2. Brufen 200 mg, 400 mg - Ibuprofen NSAID	IP	F
	3. Paracetamol 500mg	IP	F
	4. Indomethacin 25mg	IP	F
	5. Diclonac Sodium - Diclofenac Sodium NSAID		F
	6. Tab. Prednisolone 5, 10 mg	IP	F
Antiallergic	1. Tab. CPM 4 mg - Chlorpheniramine maleate	IP	F
Anti - hypertensives	1. Atenalol 25 mg, 50 mg	BP	F
	2. Propranolol 40mg	IP	F
	3. Tab. Lasix 40 mg - frusemide	IP	F
	4. Tab. Methyl Dopa 250 mg	IP	F
	5. Cap. Nifedepine 5, 10, 20 mg	IP	F
Anti - arrhythmics	1. Digoxin 0.25 mg	IP	F
Anti - cholinergics	1. Tab. Buscopan - Hyoscine N-butyl bromide	BP	F
Anti - convulsants	1. Diazepam 5 mg	IP	F
	2. Phenytoin Sodium 100mg	IP	F
	3. Tab. Phenobarbitone Sodium 30 mg, 60 mg	IP	F

Therapeutic Category	Drug Description	Ph.poea	L/S
Antacids	1. Magnesium Trisilicate	IP	F
	2. Aluminium hydroxide 500mg	IP	F
	3. Tab. Ranitidine 150mg, 300 mg	USP	F
Anti - diarrhoeals	1. Loperamide		
Anti diabetics	1. Euglucon 5 mg, 2.5 mg - Glibenclamide 5mg	IP	F
Anti emetic	1. Metoclopramide Hcl , 10mg	IP	F
Broncho - dilators	1. Deriphylin retard - Etofyllin 115mg , Theophyllin 35mg		F
	2. Terbutaline 2.5 mg	IP	T
	3. Tab. Salbutamol 2 mg, 4 mg	IP	T
Cardiotonic	1. Digoxin 0.25mg	IP	F
Diuretics	1. Tab. Lasix 40 mg - frusemide	IP	F
	2. Spironolactone 25mg	IP	F
Haematinics	1. Ferrous Sulphate (300 mg)	IP	F
	2. Tab. Folic Acid (5 mg)	IP	F
Sedative / hypnotics	1. Diazepam 5 mg	IP	F
	2. Tab. Phenobarbitone Sodium 30 mg, 60 mg	IP	F
Smooth Msc. relaxant	1. Valathamate bromide 10mg	USP	T
Vitamins	1. B. Complex Therapeutic and Prophylactic	NFI	F
	2. Multi Vitamin Therapeutic and Prophylactic	NFI	F
	3. Tab. Folic Acid (5 mg)	IP	F
	4. Tab. Vitamin 'C' 100 mg, 500 mg	IP	F

Skin & STD			
Therapeutic Category	Drug Description	Ph.poea	L/S

I Ointments			
Topical Steroids	1. Leder cort - Triamcinolone acetate 0.1%		F
	2. Eumosone - Clobetasone 17-butyrate 0.05%		F
	3. Tenovate - Clobetasol propionate 0.05%		F
	4. Diprovate - Betamethasone dipropionate 0.64%		F
	5. Dentalene - Betamethasone dipropionate + Gentamicin		F
	6. Diprovate MF - Betamethasone dipropionate 0.05% , Salicylic acid 3% , Urea 10% , Lactic acid 3% , Sodium lactate 2%		F
	7. Dipsalic - Betamethasone dipropionate 0.64mg + Salicylic acid 30mg ; per gram		F
	8. Millicortin-vioform - Dexamethasone trimethyl acetate 0.02% , Quiniodochlor 5%		F
	9. Betagel - Betamethasone dipropionate 0.05%; topical gel		F
	10. Diprovate RD - Betamethasone dipropionate 0.0125% - cream		F
	11. Diplene - Betamethasone dipropionate 0.64mg per gram - cream		F
	12. Fembesol - Clobetasol propionate		F
	13. Steriderm - Clobetasol propionate		F
	14. Exel - Clobetasol propionate 0.05%		F
	15. Exiderm - Betamethasone		F
II Anti Fungal Ointment			
Topical anti-fungal agents	1. Phytrol - Clotrimazole		F
	2. Nizral - Ketoconazole		F
	3. Canesten - Clotrimazole 10mg/g		F
	4. Fungitop - Miconazole nitrate 2%		F
	5. Fumin -		F
	6. Tinaderm - Tolnaftate 10mg/ml Soln.		F
	7. Candid - Clotrimazole 1%		F
	8. Candid B lotion - Clotrimazole 1%, Beclomethasone dipropionate 0.025%		F
	9. Surfaz - Clotrimazole 1% soln. or powder		F

Therapeutic Category	Drug Description	Ph.poea	L/S
Other Ointments			
Topical anti-bacterial	1. Erytop - Erythromycin Oint.		F
	2. Fucidin - Sodium fusidate 2% Oint.		F
	3. Chloramphenicol Applicaps 1%	IP	F
	4. Framycetin Sulphate 1%	BP	F
	5. Gentamycin Oint.	IP	F
Topical anti-infective preparations	1. Ensamycin - Sisomicin sulphate 0.1%		F
	2. Silverex - Silver sulphadiazine 1% , Chlorhexidine gluconate 0.2%		F
	3. Dichlorometaxilenol 105% RWC/3		F
Soothing & Protective preparations	1. Aloderm - Vitamin A skin cream		F
	2. Siloderm - Dimethicone 20% , Zinc Oxide 7.5% , Calamine 1.5% , Cetrimide 1.125%		F
	3. Ayur calamine - Calamine lotion		F
	4. Benzoin CO TRIP, 450 ml	IP	F
	5. Dermical - Calamine cream		F
	6. Airol - Vitamin A		F
Keratolytic & cleansers	1. Cotaryl - Urea 12% , Calcium lactate 0.5% , lactic acid 6% , Potassium chloride 0.5% , Magnesium chloride 0.3% , Amino acetic acid 3% , Sodium acid phosphate 0.5% , Ammonium chloride 0.5% , Sodium chloride 0.5%		F
	2. Moisturex - Urea 10% , Lactic acid 10% , Propylene glycol 10% , liquid paraffin 10%		F
Topical anti-parasitic	1. GAB - Gama benzene hexachloride		F
	2. Benzyl Benzoate applicap. 25% ,450ml	IP	F
Acne preparations	1. Clinade - Clindamycin 1%		F
	2. Retino-A - Tritinoin 0.025% or 0.05% - trans retinoic acid		F
	3. Persol forte - Precipitated sulphate 5% , Benzoyl peroxide 10%		F

Therapeutic Category	Drug Description	Ph.poca	L/S
Anti Allergic Tablets			
	1. Hisnofil - Cetrizine hydrochloride 10mg tabs.		F
	2. Zetop - Allerzole 10mg tabs.		F
	3. Alerid - Cetrizine dihydrochloride 10mg tabs.		F
	4. Rhizine - Cetrizine hydrochloride 10mg tabs.		F
	5. Foristal lontabs -		F
	6. Polaramine repetabs - Dexchlorpheniramine maleate 2mg tabs.		F
	7. Trexyl 60 mg - Terfenadine 60mg tabs.		F
Other Tablets			
Anti fungal	1. Grisovin FP- Griseofulvin 125mg tabs.		F
	2. Nizral - Ketoconazole 200mg tabs.		F
	3. Canesten Vag - Clotrimazole 100mg ;Vaginal tabs.		F
Anti bacterial	1. Roxid - Roxithromycin 150mg tabs.		F
Pigment disorder	1. Neosoralen - Trimethyl psoralen 5mg tabs.		F
	2. Recolina		
Anaesthetics & agents for pre-medication			
General anaesthetics	1. Inj.Thiopentone sodium, 0.5 gm/vial	IP	F
	2. Ketamine, 50 mg/cc - 10 ml vial		T
	3. Halothane, 200 ml bottles	IP	F
	4. Diethyl ether, 500 ml bottles	IP	F
Local anaesthetics	1. Inj Lignocaine Hydrochloride, 2 %	IP	F
	2. Lignocaine Hydrochloride, 4 % - topical anaesthetic	IP	F
	3. Inj Lignocaine Heavy, 5 % ampoule	IP	F
	4. Inj Sensoracaine, 0.5 % ampoule/ vial - Bupivacaine Hcl 5mg/ml		F
	5. Inj Sensoracaine Heavy, 0.5 % 4 ml ampoule/ vial - Bupivacaine Hcl 5mg , dextrose monohydrate 80mg , per ml.		F
	6. Lignocaine jelly, tubes - lignocaine Hcl 2%	IP	F
	7. Lignocaine viscous, bottles - lignocaine Hcl 2%	IP	F

Therapeutic Category	Drug Description	Ph.poea	L/S
Muscle relaxants	1. Inj. Succinyl scoline, 50 mg/cc-10 ml vial	USP	F
	2. Atracurium (Tracurium), Ampoule - Atracurium besylate 10mg /ml		F
	3. Inj Vekuronium Bromide (Norcuron), Ampoule		F
Anaesthetic adjuvants	1. Inj Panlon (Infar Company), Ampoule - Pancuronium bromide 2mg/ml		F
Analgesics	1. Inj Pethidine, Ampoule	IP	T
	2. Morphine, Ampoule	IP	T
	3. Inj Tramadol Hydrochloride (Tramazac), 50 mg Ampoule		
	4. Inj Pentazocine, Ampoule - 30mg/ml	IP	T
Sedative / hypnotics	1. Inj Diazepam, Ampoule	IP	T
Anti-cholinergics	1. Atropine Injection, Ampoule	IP	T
	2. Inj Glycopyrrolate, Ampoule - glycopyrronium		F
Anti-cholinesterase	1. Atropine Injection, Ampoule	IP	T
	2. Inj Neostigmine, 0.5 mg/ml - amp	IP	F
Anti - allergic	1. Inj. Phenergan, Ampoule - Promethazine Hcl 10mg & 25mg tabs.	IP	T
	2. Inj Synistamin, Ampoule		T
Vasopressor	1. Inj Ephedrin Hydrochloride, Ampoule 32mg/ml		F
Anti - hypertensives	1. Inj Propranolol, Ampoule		F
Antiseptics & Disinfectants	1. Chlorhexidine Gluconate 7.5%, 1lt		F
	2. Iodine weak solution TR-IP 450ml	IP	F
	3. Formaldehyde 500ml		F

Therapeutic Category	Drug Description	Ph.poea	L/S
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Emergency Drugs			
Adrenergics	1. Inj Adrenaline, ampoule	IP	T
	2. Inj Dopamine, Ampoules	BP	T
	3. Inj Mephentine, 30 mg/cc - 10 ml vial - Mephenteramine sulphate 30mg/ml	IP	T
Diuretics	1. Inj Lasix, ampoule - Furosemide 10mg/ml	IP	T
	2. Inj Mannitol 10 %, 250 ml bottles	IP	F
Vasopressor	1. Inj Mephentine, 30 mg/cc - 10 ml vial - Mephenteramine sulphate 30mg/ml	IP	T

Annexure 6

Furniture and Equipment for a Blood Bank

Furniture

	<u>Rs.</u>
1. Office table and three chairs for Medical Officer	8,000
2. Office table and two chairs for staff nurse	7,000
3. Three laboratory tables stainless steel with sunmica top	21,900
4. Six rotary type stainless steel stools	12,000
5. Two donor couches stainless steel with cushion	21,800
6. Three stainless steel side trolleys with rack	<u>10,950</u>
Total	81,650

Equipment

1. Diesel Generating set 5 KVA	45,000
2. Two 1½ tonne window type air conditioners	110,000
3. Three voltage stabilizers	16,500
4. Two rechargeable emergency lights	6,600
5. Weighing balance 1-100 Kg.	10,950
6. Two blood bank refrigerators capacity 200-300 bags	219,000
7. One refrigerator 260 lts	17,500
8. Two microscopes binocular	21,900
9. One bench centrifuge with timer	21,900
10. Two Incubators	10,950
11. Distilled Water Plant	10,950
12. Water Bath	10,950
13. Autoclave	21,900
14. Micropipette	21,950
15. Sealer with cutter work alluminum clips	<u>6,600</u>
Total	552,650

Annexure 7

Beneficiary Need Assessment

Role of Health Workers in Outreach

	Tribal Areas		Non- Tribal Areas	
	Number	Percent	Number	Percent
Is there anyone visiting each house in your village to:				
(a). to check if any member has fever?				
Yes	339	81.3	182	93.8
No/ No response	78	18.7	12	6.2
Total	417	100.0	194	100.0
<u>If 'Yes' who visits?</u>				
HWM	13	3.8	54	29.7
ANM	306	90.3	115	63.2
Others	20	5.9	13	7.1
Total	339	100.0	182	100.0
(b). to provide medicines?				
Yes	332	79.6	135	69.6
No/ No response	85	20.4	59	30.4
Total	417	100.0	194	100.0
<u>If 'Yes' who visits?</u>				
HWM	13	3.9	34	25.2
ANM	305	91.9	89	65.9
Others	14	4.2	12	8.9
Total	332	100.0	135	100.0
(c). to advice on family planning ?				
Yes	347	83.2	179	92.3
No/ No response	70	16.8	15	7.7
Total	417	100.0	194	100.0
<u>If 'Yes' who visits?</u>				
HWM	9	2.6	28	15.6
ANM	321	92.5	146	81.6
Others	17	4.9	5	2.8
Total	347	100.0	179	100.0
(d).to give advice on FP methods?				
Yes	348	83.5	169	87.1
No/ No response	69	16.5	25	12.9
Total	417	100.0	194	100.0
<u>If 'Yes' who visits?</u>				
HWM	9	2.6	28	15.6
ANM	321	92.5	146	81.6
Others	17	4.9	5	2.8
Total	347	100.0	179	100.0

	Tribal Areas		Non- Tribal Areas	
	Number	Percent	Number	Percent
(e).to distribute FP aids?				
Yes	321	77.0	159	82.0
No/ No response	96	23.0	35	18.0
Total	417	100.0	194	100.0
<u>If 'Yes' who visits?</u>				
HWM	30	9.3	20	12.6
ANM	267	83.2	136	85.5
Others	24	7.5	3	1.9
Total	321	100.0	159	100.0
(f). to provide care to preganant women?				
Yes	337	80.8	173	89.2
No/ No response	80	19.2	21	10.8
Total	417	100.0	194	100.0
<u>If 'Yes' who visits?</u>				
HWM	9	2.7	4	2.3
ANM	310	92.0	160	92.5
Others	18	5.3	9	5.2
Total	337	100.0	173	100.0
(g). to conduct deliveries?				
Yes	309	74.1	144	74.2
No/ No response	108	25.9	50	25.8
Total	417	100.0	194	100.0
<u>If 'Yes' who visits?</u>				
HWM	10	3.2	2	1.4
ANM	283	91.6	122	84.7
Others	16	5.2	20	13.9
Total	309	100.0	144	100.0
(h). to provide advice on care of mothe and new born?				
Yes	341	81.8	180	92.8
No/ No response	76	18.2	14	7.2
Total	417	100.0	194	100.0
<u>If 'Yes' who visits?</u>				
HWM	9	2.6	3	1.7
ANM	314	92.4	164	91.1
Others	17	5.0	13	7.2
Total	340	100.0	180	100.0
(i). for immunization of pregnant women?				
Yes	347	83.2	182	93.8
No/ No response	70	16.8	12	6.2
Total	417	100.0	194	100.0
<u>If 'Yes' who visits?</u>				
HWM	9	2.6	3	1.6
ANM	322	92.8	167	91.8
Others	16	4.6	12	6.6
Total	347	100.0	182	100.0

	Tribal Areas		Non- Tribal Areas	
	Number	Percent	Number	Percent
(j).for immunization of children?				
Yes	347	83.2	176	90.7
No/ No response	70	16.8	18	9.3
Total	417	100.0	194	100.0
<u>If 'Yes' who visits?</u>				
HWM	9	2.6	5	2.8
ANM	318	92.4	161	91.5
Others	17	4.9	10	5.7
Total	344	100.0	176	100.0
(k). to educate mothers on nutritious diet?				
Yes	341	81.8	174	89.7
No/ No response	76	18.2	20	10.3
Total	417	100.0	194	100.0
<u>If 'Yes' who visits?</u>				
HWM	0	0.0	5	2.9
ANM	316	92.7	155	89.1
Others	25	7.3	14	8.0
Total	341	100.0	174	100.0
(l). to educate mothers on home management of diarrhoea?				
Yes	336	80.6	165	85.1
No/ No response	81	19.4	29	14.9
Total	417	100.0	194	100.0
<u>If 'Yes' who visits?</u>				
HWM	0	0.0	6	3.6
ANM	313	93.2	145	87.9
Others	23	6.8	14	8.5
	336	100.0	165	100.0
Frequency of visits by Health worker				
Weekly	249	59.6	97	50.0
Fortnightly	28	6.6	33	17.0
Monthly	68	16.3	28	14.4
Less often	5	1.2	8	4.1
No Response	68	16.3	28	14.4
	417	100.0	194	100.0

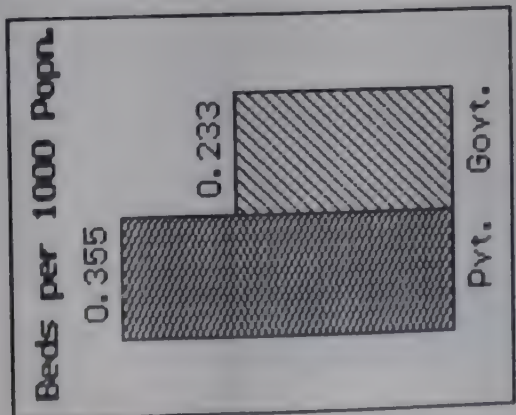
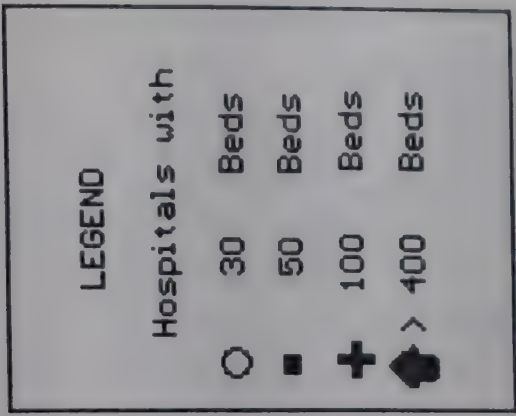
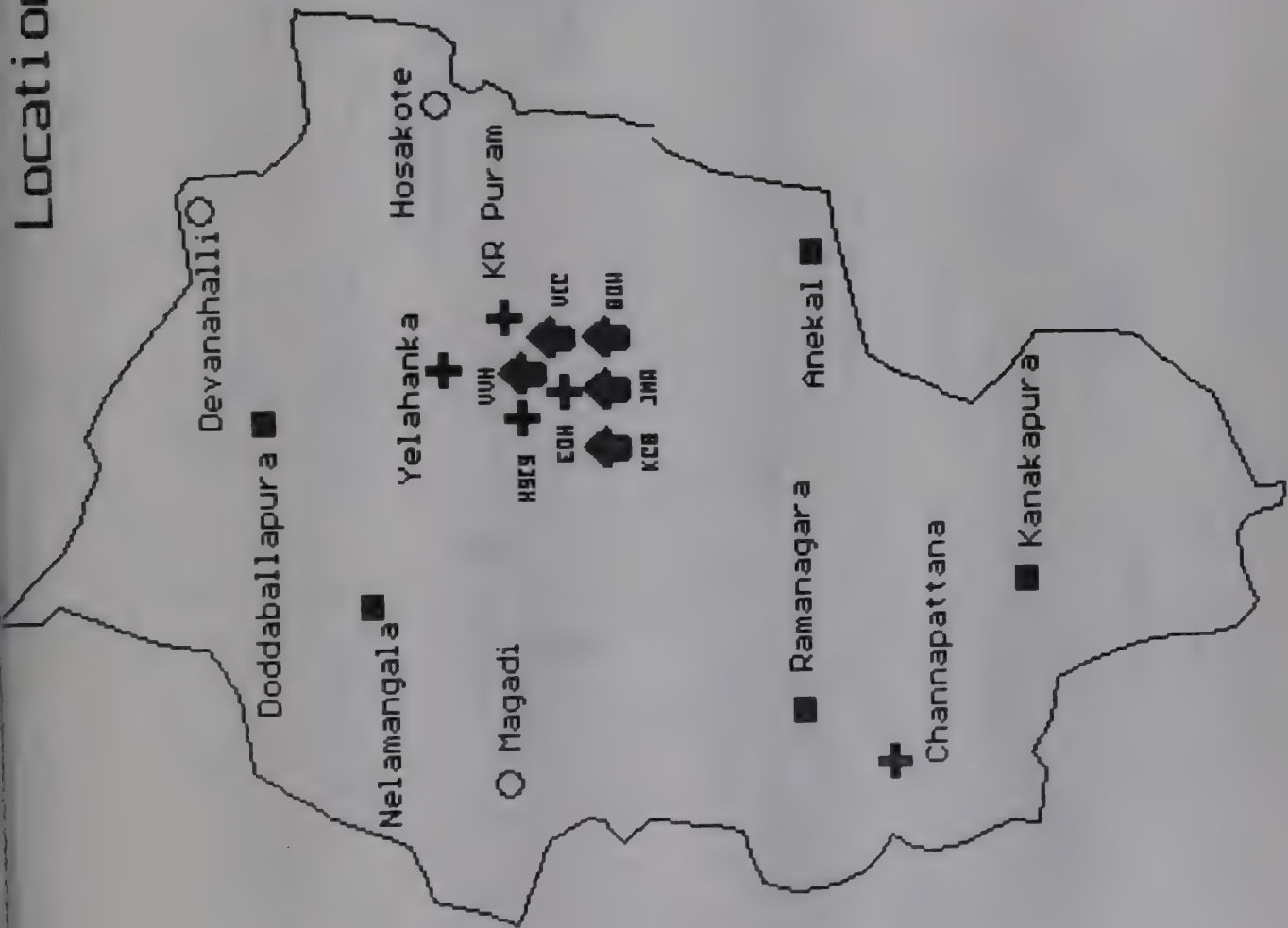
Annexure 8 Laboratory Equipment

Srl. No.	Item	Price 000 Rs.	Qty. for 20 Districts	Value 000 Rs.
1	Microscope, binocular with lamp	20	20	0.40
2	Chemical balance, analytical/optical	15	20	0.30
3	Glucometer	8	20	0.16
4	Micro Pippettes 0.25ml, 0.5ml, 1ml, 2ml	10	20	0.20
5	Electrophoresis system	8	20	0.16
6	Water bath	4	20	0.08
7	Hot air oven, 2 levels	18	20	0.36
8	Incubator, laboratory	22	20	0.44
9	Distilled Water still, 4 litres/hr	6	20	0.12
10	Centrifuge (Hand operated)	0.5	20	0.01
11	Centrifuge (haematocrit)	4	20	0.08
12	Hot plate, 2kw	1.5	20	0.03
13	Rotor/shaker (laboratory)	3.5	20	0.07
14	Neubar chamber	1	80	0.08
15	pH meter	15	20	0.30
16	Haemoglobinometer	1	40	0.04
17	Microtome	9.5	20	0.19
18	Oven, wax-embedding	8.5	20	0.17
19	Tissue Processor	30	20	0.60
20	Timer/ stopwatch	1	20	0.02
21	Alarm clock (timer)	0.4	20	0.01
22	Photo-electric colorimeter	22	20	0.44
23	Flame photometer	22	20	0.44
24	Refregirator 165 lts	9	20	0.18
25	Autoclave Electrical	2	20	0.04
26	Gas plant with 6 burners	50	20	1.00
27	Innoculation Chamber	2.5	40	0.10
28	Instrument Sterilizer (Electrical)	1.2	40	0.05
29	ESR stand (for 12 Tubes)	0.3	40	0.01
30	Urinometer	0.07	20	0.00
31	Albinometer	0.08	20	0.00
32	Hystocynate with Electric Handling	7	20	0.14
33	Formaline Vapour Sterilizer	0.85	20	0.02
34	Chloroscope	0.28	20	0.01
35	Spectrometer	9	20	0.18
	Total equipment		0	6.42
	Glass Ware		0	
1	Beakers 50 ml	0.029	60	0.00
2	Beakers 100 ml	0.035	60	0.00
3	Beakers 250 ml	0.045	60	0.00
4	Beakers 500 ml	0.07	60	0.00
5	Reagent Bottles 250 ml	0.075	120	0.01
6	Reagent Bottles 500 ml	0.095	120	0.01
7	Reagent Bottles 1000 ml	0.13	120	0.02
8	Centrifuge tube 15 ml graduated	0.65	480	0.31
9	Conical flask 250 ml	0.078	120	0.01
10	Conical flask 500 ml	0.105	120	0.01
11	Conical flask 1000 ml	0.16	120	0.02
12	Test tubes 150mm x 10mm	0.009	2880	0.03
13	Test tubes 120mm x 12mm	0.006	2880	0.02

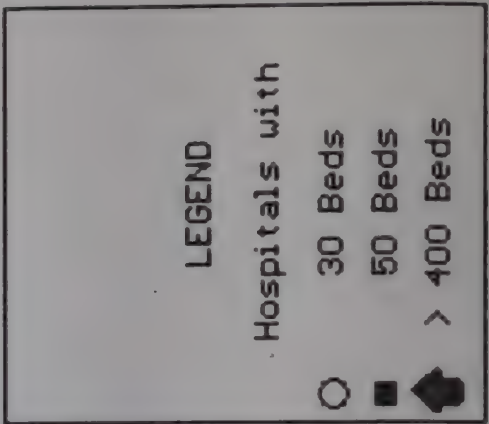
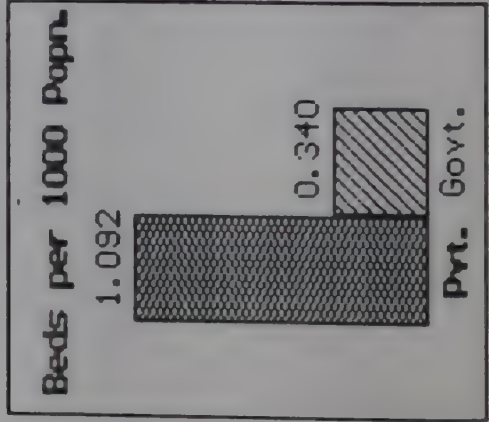
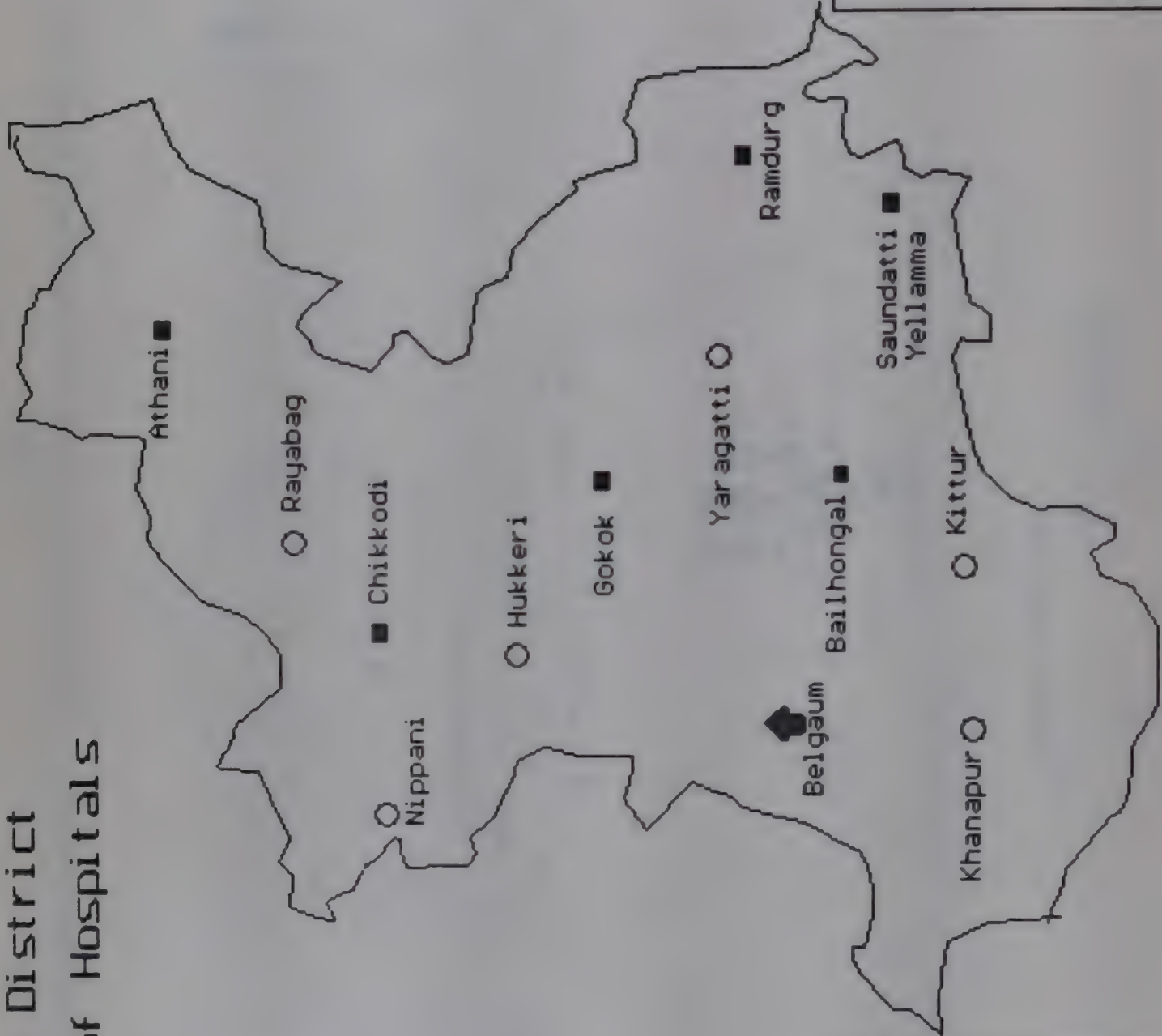
Annexure 8 Laboratory Equipment

Srl. No.	Item	Price 000 Rs.	Qty. for 20 Districts	Value 000 Rs.
14	Khan tubes 10 x 75	0.005	2880	0.01
15	Petridish 100 x 17mm	0.05	480	0.02
16	Petridish 150 x 20mm	0.22	480	0.11
17	Micro slides 75mm x 25mm x 1.3mm (144)	0.1	400	0.04
18	Measuring cylinders 50ml	0.15	40	0.01
19	Measuring cylinders 100ml	0.2	40	0.01
20	Measuring cylinders 250ml	0.325	40	0.01
21	Measuring cylinders 1000ml	0.625	40	0.03
22	Staining Jars 250ml	0.065	120	0.01
23	Glass rods solo 6mm dia.	0.075	200	0.02
24	Glass funnel 65mm dia	0.085	120	0.01
25	Glass funnel 100mm dia	0.125	120	0.02
26	Dropper bottle white 100ml	0.03	200	0.01
27	Dessicator 20cms	4.5	20	0.09
28	Pipettes graduated 1ml	0.048	120	0.01
29	Pipettes graduated 2ml	0.05	120	0.01
30	Pipettes graduated 5ml	0.065	120	0.01
31	Pipettes graduated 10ml	0.075	120	0.01
32	Pasteur pipettes	0.005	2000	0.01
33	Round bottomed flask 250ml	0.095	60	0.01
34	Round bottomed flask 500ml	0.12	60	0.01
35	Round bottomed flask 1000ml	0.165	60	0.01
36	Loop holders	0.04	120	0.00
37	Nichrome wire 2mts	0.04	20	0.00
38	T.T. Racks single row x 12	0.08	120	0.01
39	T.T. Racks double row x 12	0.12	120	0.01
40	T.T. Racks widal	0.09	120	0.01
41	Rubber teats 5ml, 10ml, 25ml pipettes	0.002	720	0.00
42	ESR tubes	0.03	480	0.01
43	RBC & WBC pipettes	0.08	120	0.01
44	Stopper bottles	0.15	240	0.04
45	Slide Boxes (100 slides capacity)	0.085	80	0.01
46	VDRL slides	0.07	240	0.02
47	Rhyles tubes adult size	0.018	120	0.00
48	Rhyles tubes paediatric size	0.026	120	0.00
49	Titration stand with tube (burette - 2)	0.35	20	0.01
50	Total glass ware cost			1.02
51	Grand total cost per district laboratory			7.45

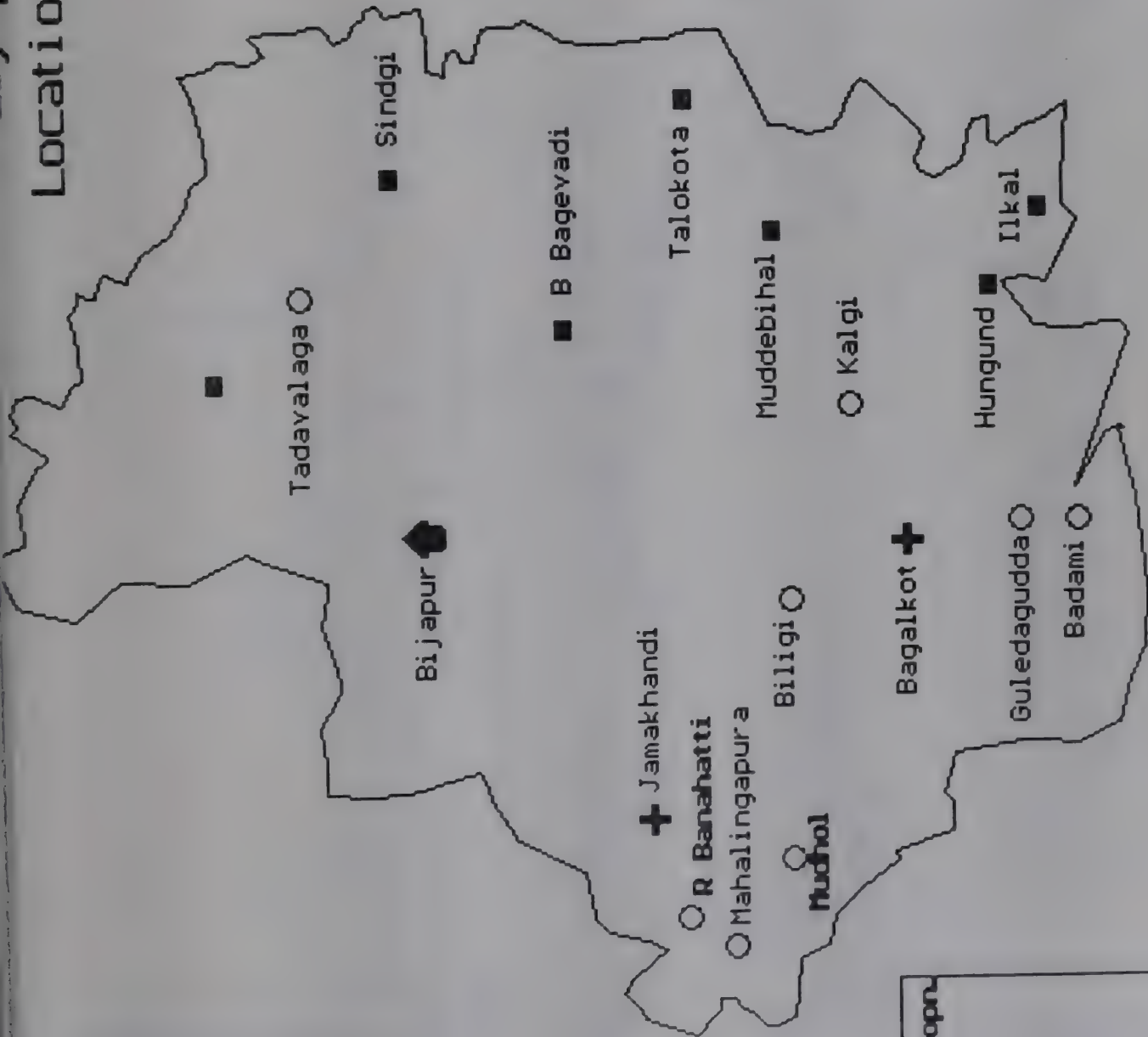
Location of Hospitals



Belgaum District Location of Hospitals



Location of Hospitals



LEGEND

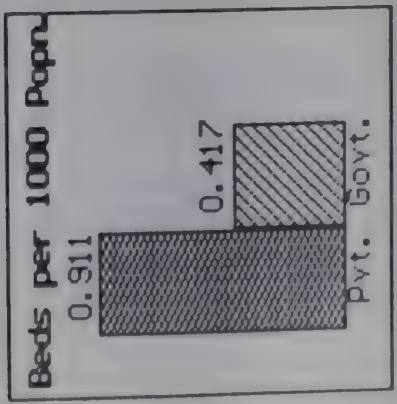
Hospitals with

30 Beds

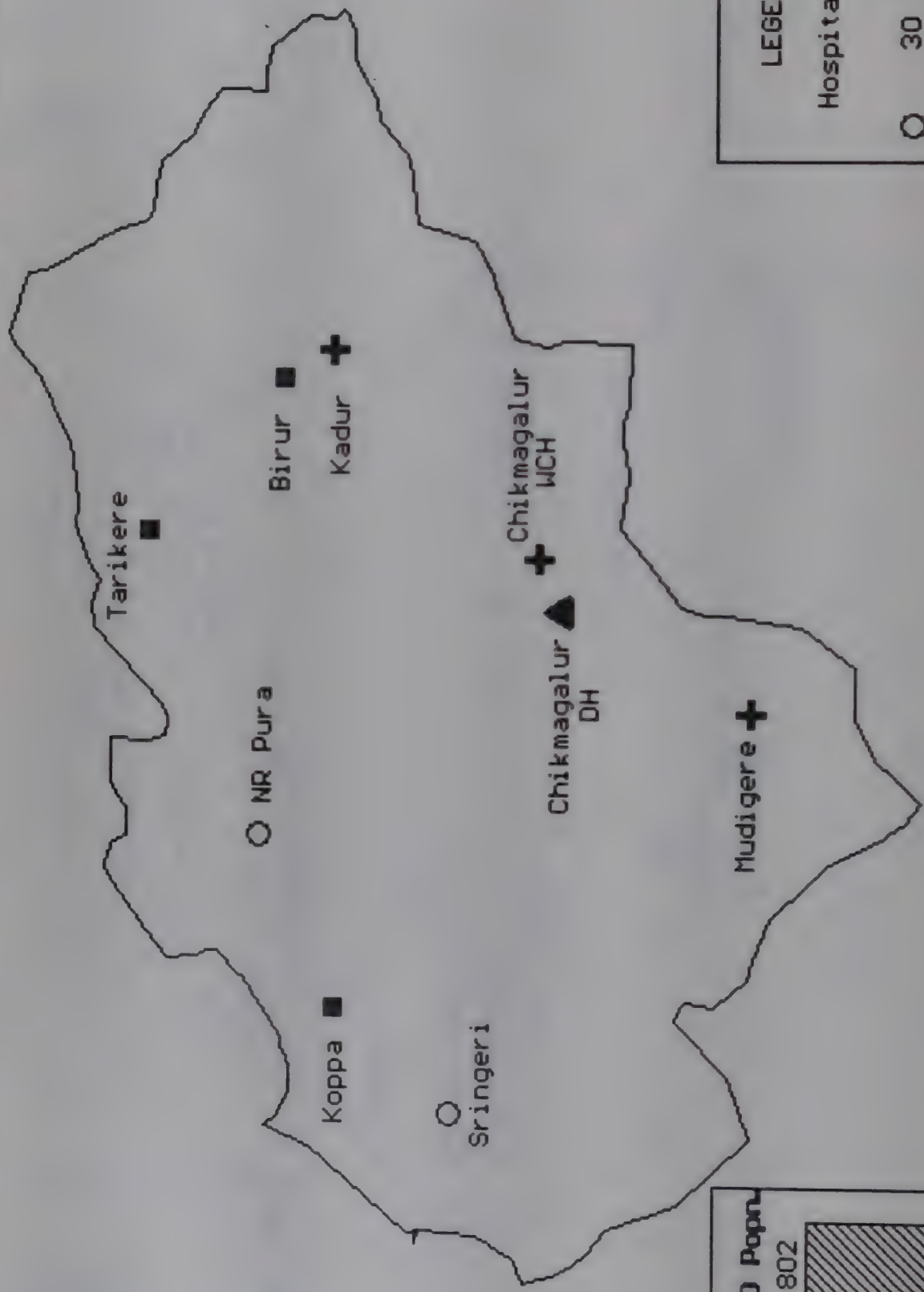
50 Beds

100 Beds

> 400 beds



Chikmagalur District Location of Hospitals



LEGEND

Hospitals with

○

30 Beds

■

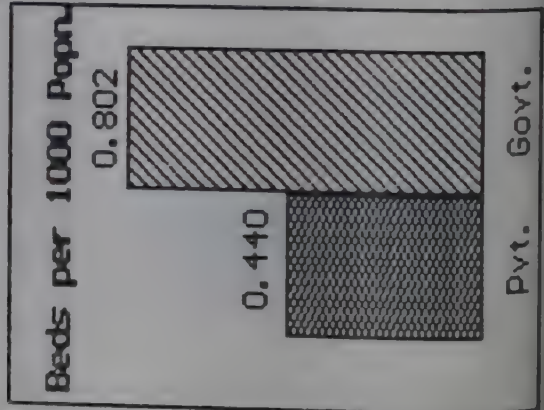
50 Beds

+

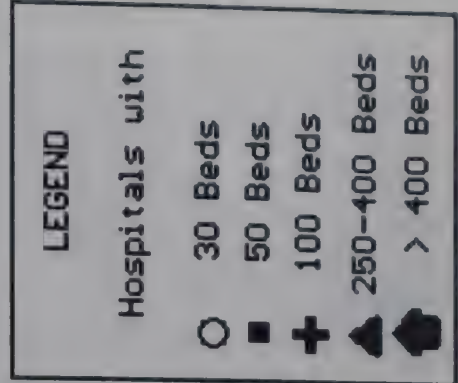
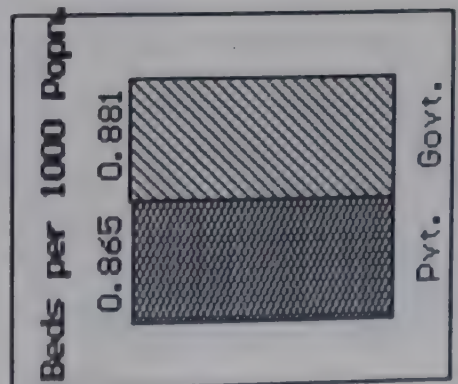
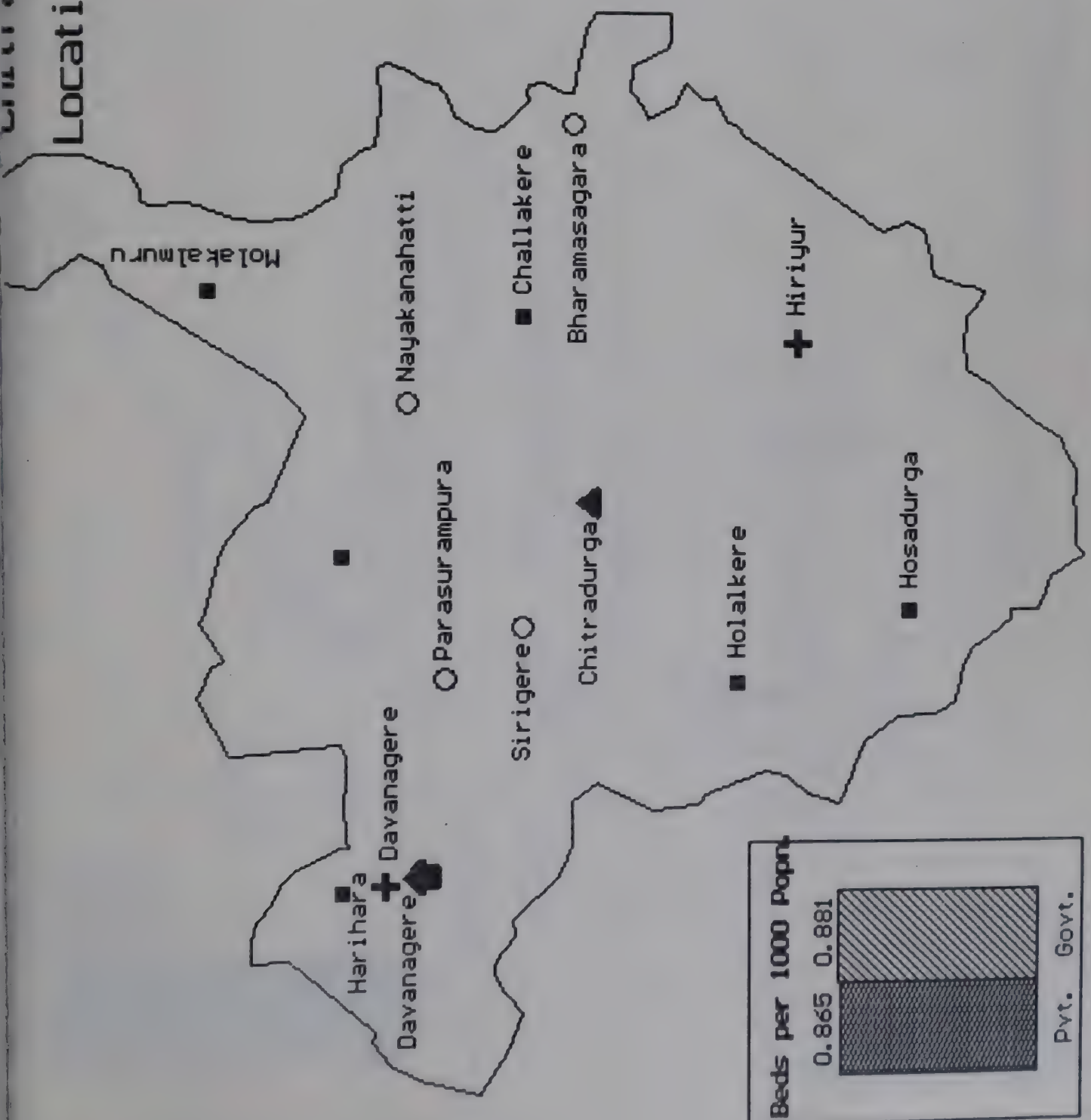
100 Beds

▲

250-400 Beds



Location of Hospitals



Dakshina Kannada District

Location of Hospitals



LEGEND

Hospitals with

- 30 Beds
- 50 Beds
- ✚ 100 Beds
- ▲ 250-400 Beds
- > 400 Beds

Beds per 1000 Popn.

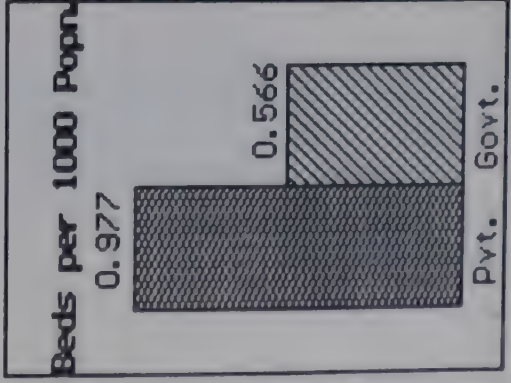
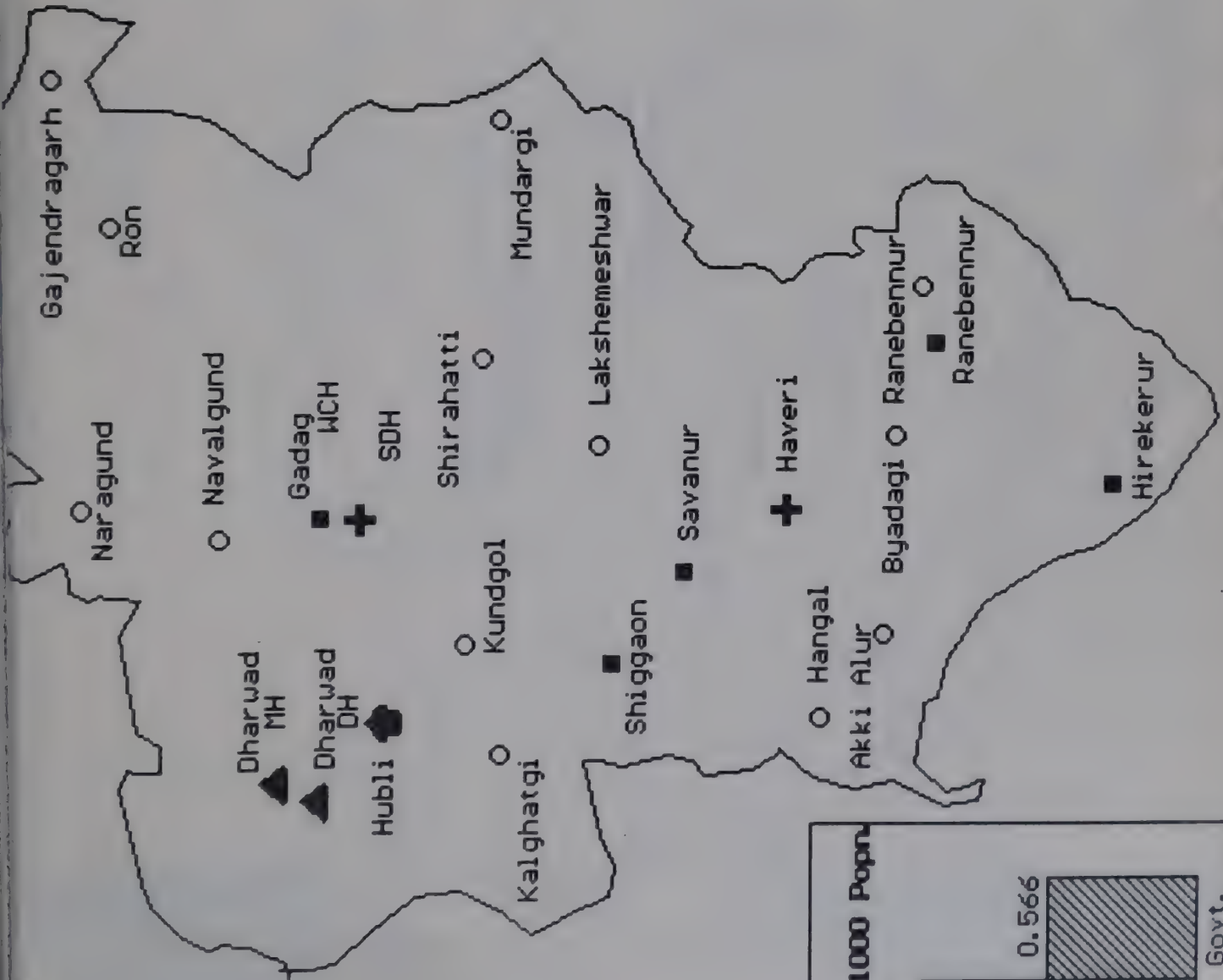
2.722



Pvt.

Govt.

Dharwad District Location of Hospitals



Hassan District Location of Hospitals

Arasikere +

Belur ■

Dudda ○

Hassan ●

Alur ○

Sakaleshpur ▲

CR Pattana ■

Hole Narasipur +

Arakalagud ■

Hiresave ○

Halli Mysore ○

Beds per 1000 Popn.

0.733

0.542

Pvt. Govt.

LEGEND

Hospitals with



30 Beds



50 Beds



100 Beds



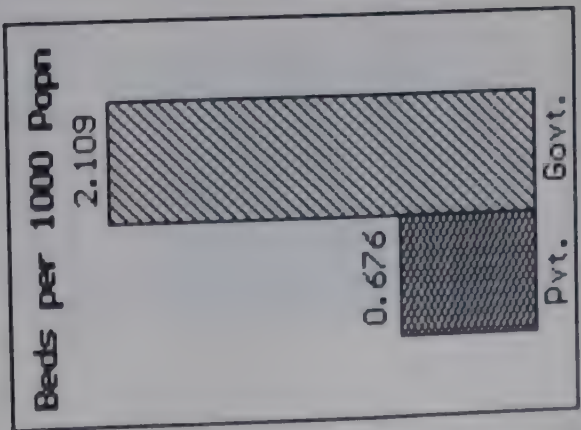
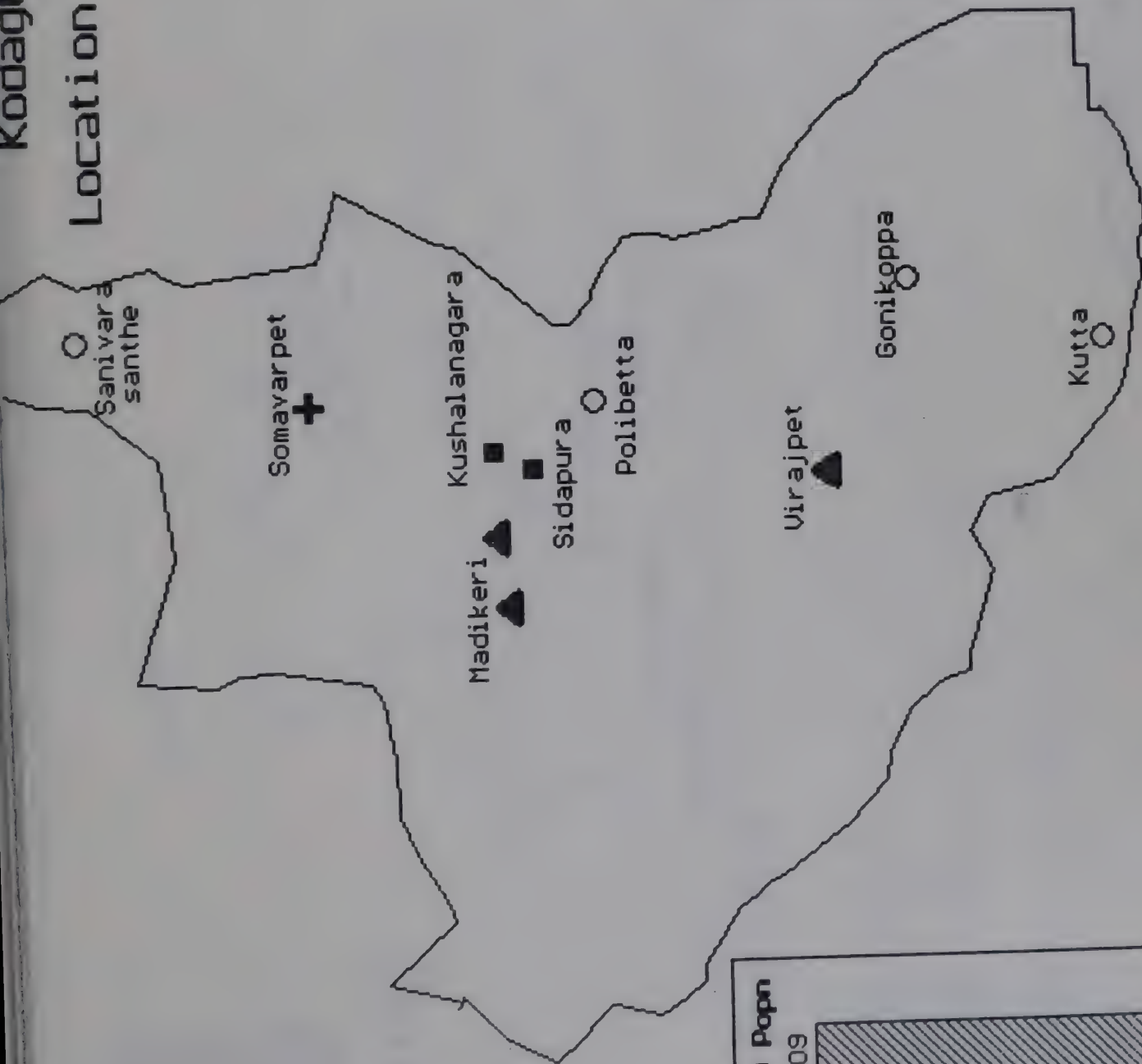
250 -400 Beds



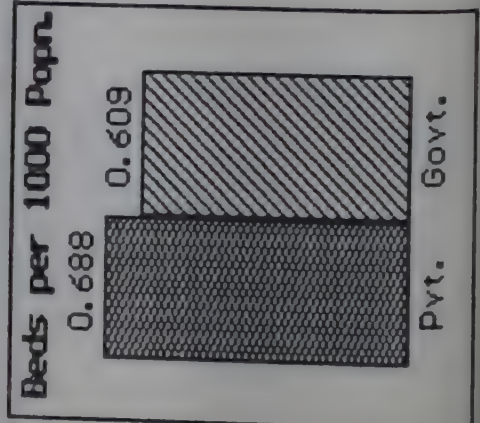
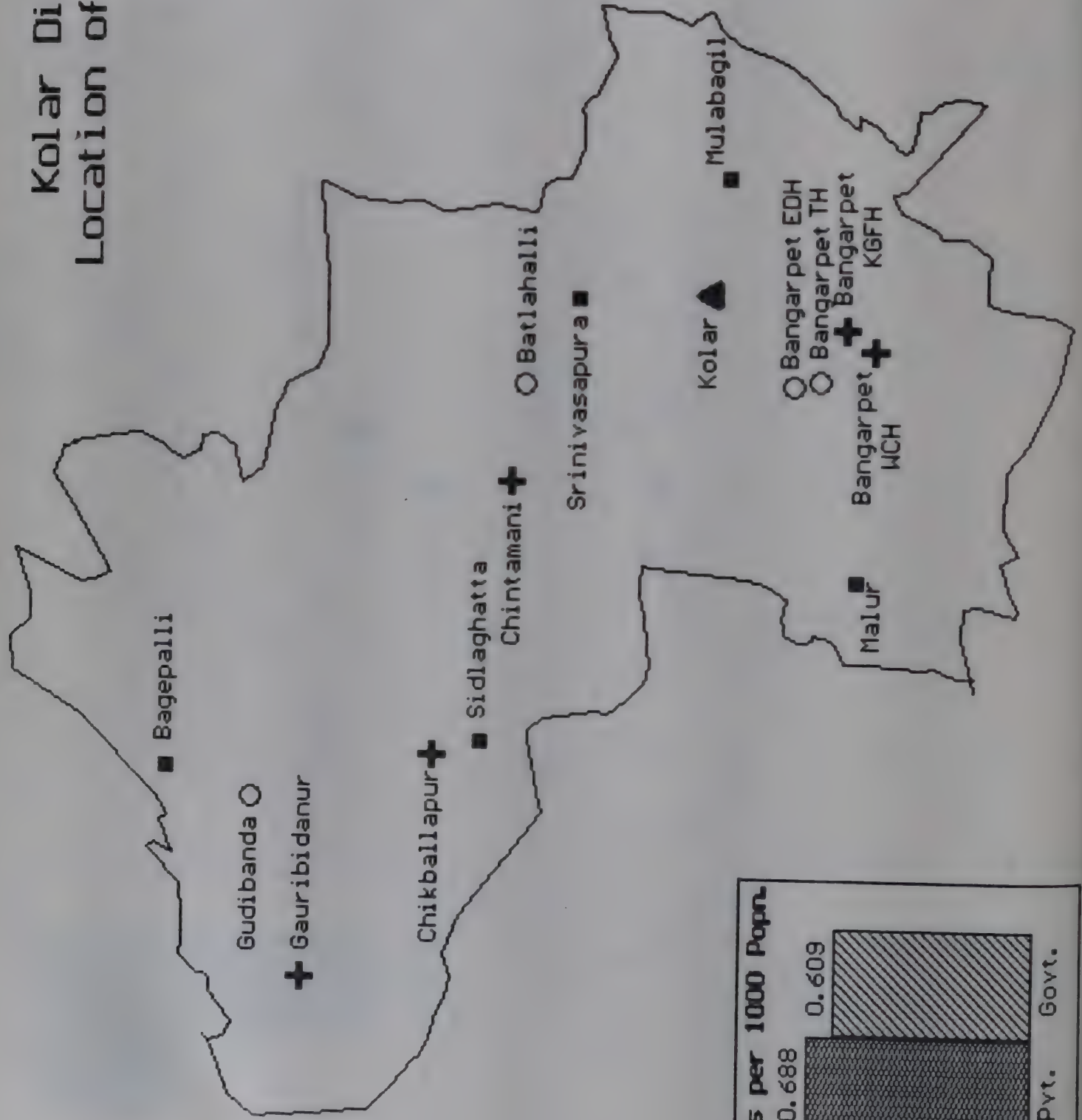
> 400 Beds

Kodagu District

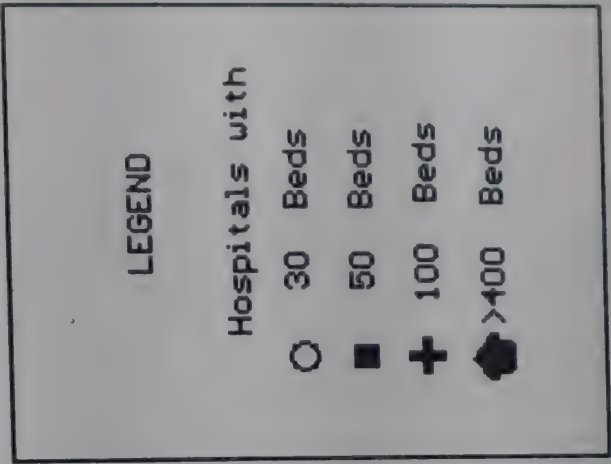
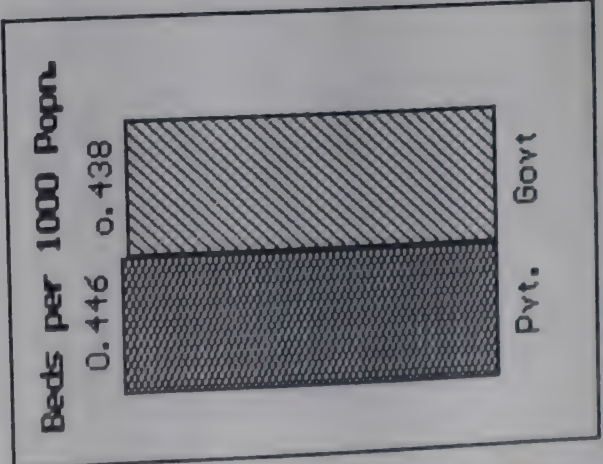
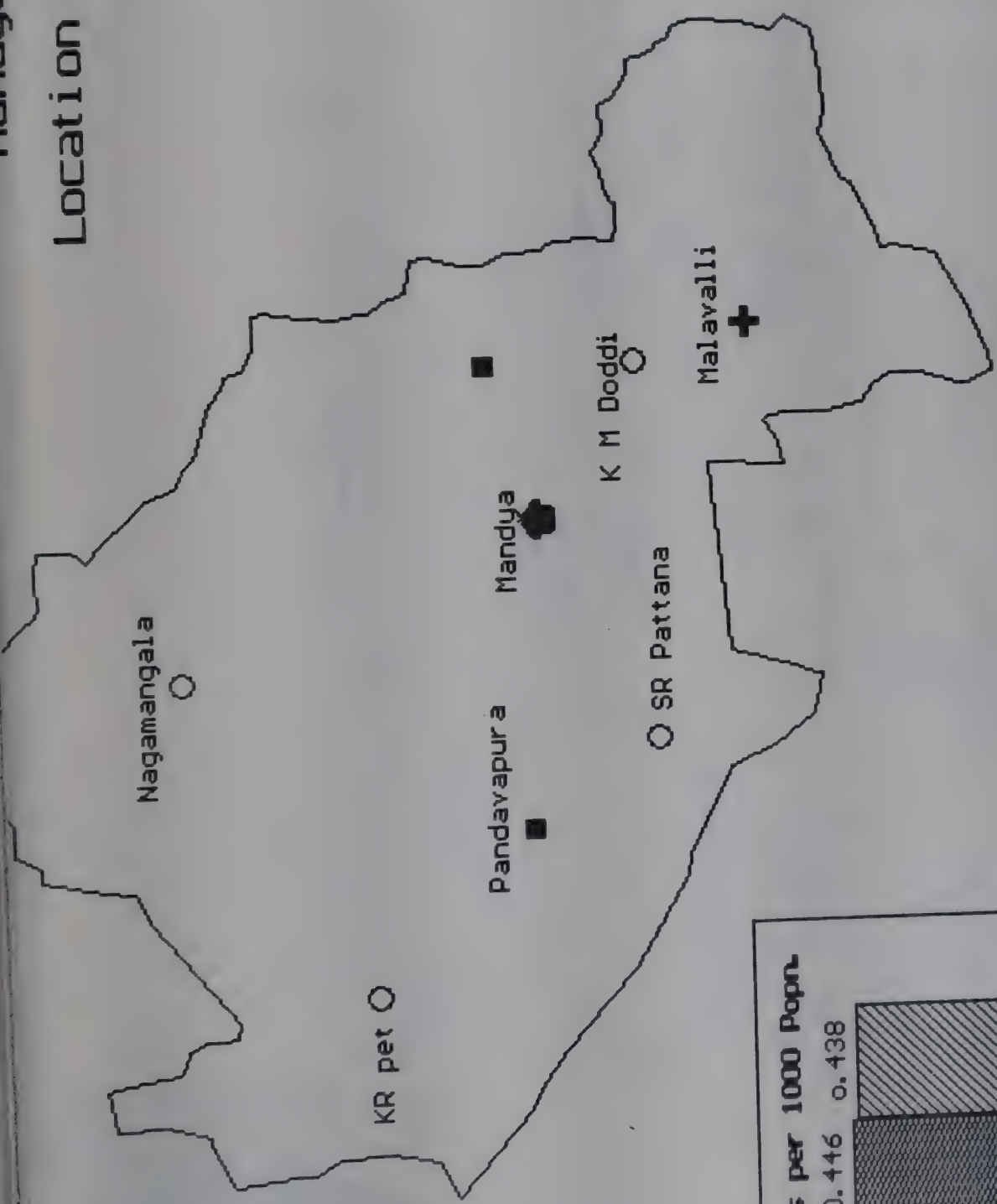
Location of Hospitals



Kolar District Location of Hospitals

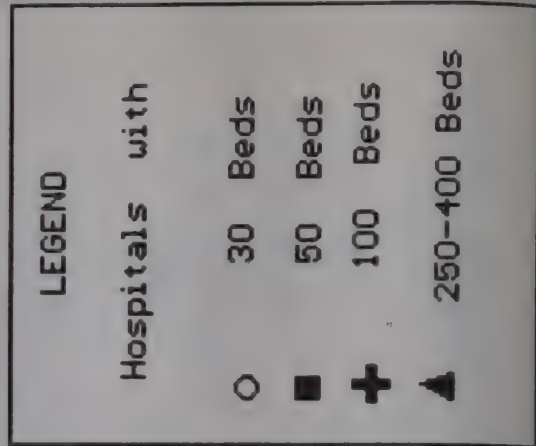
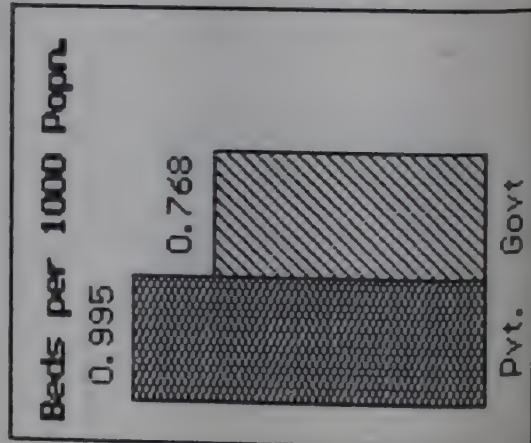
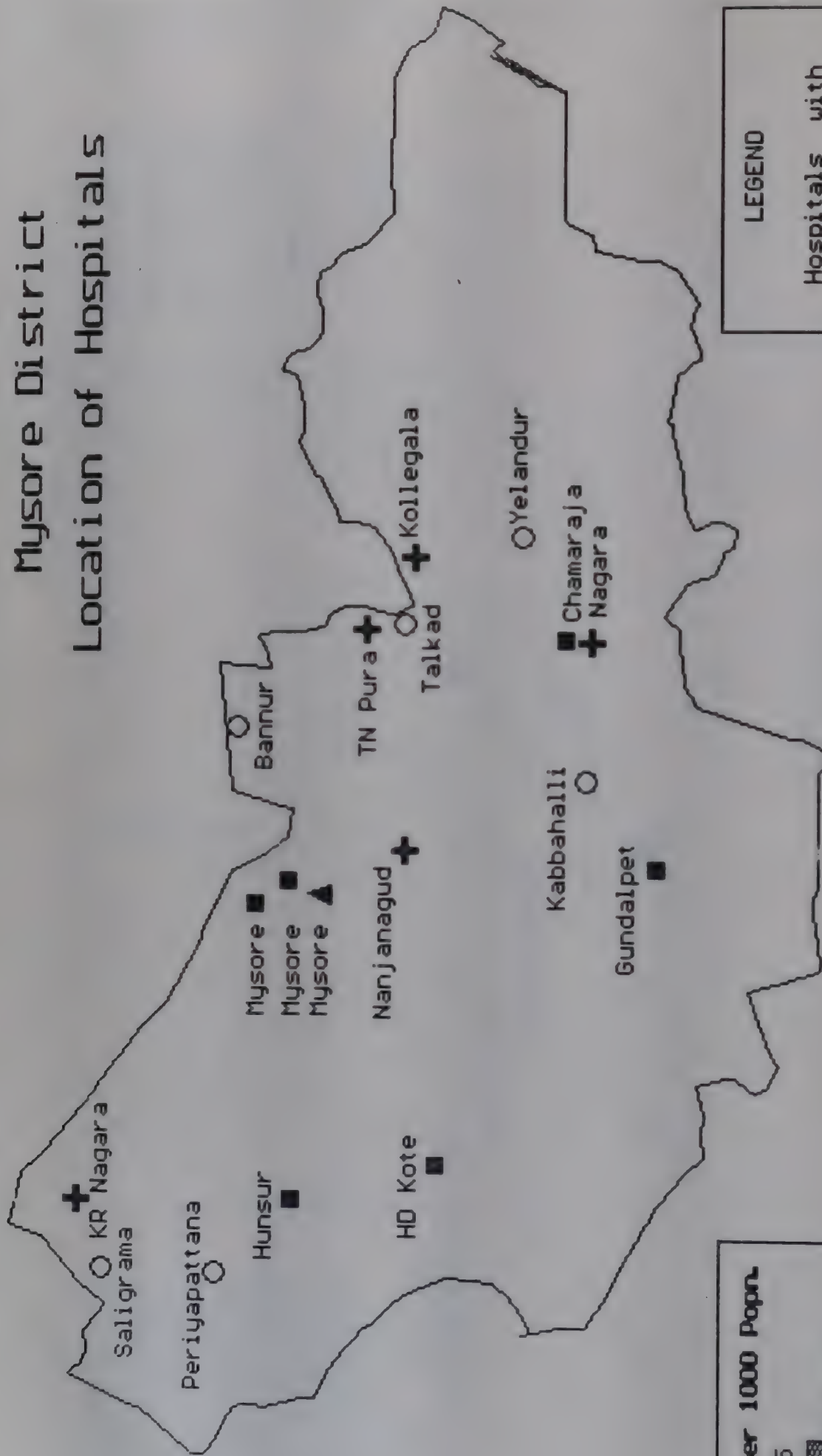


Location of Hospitals



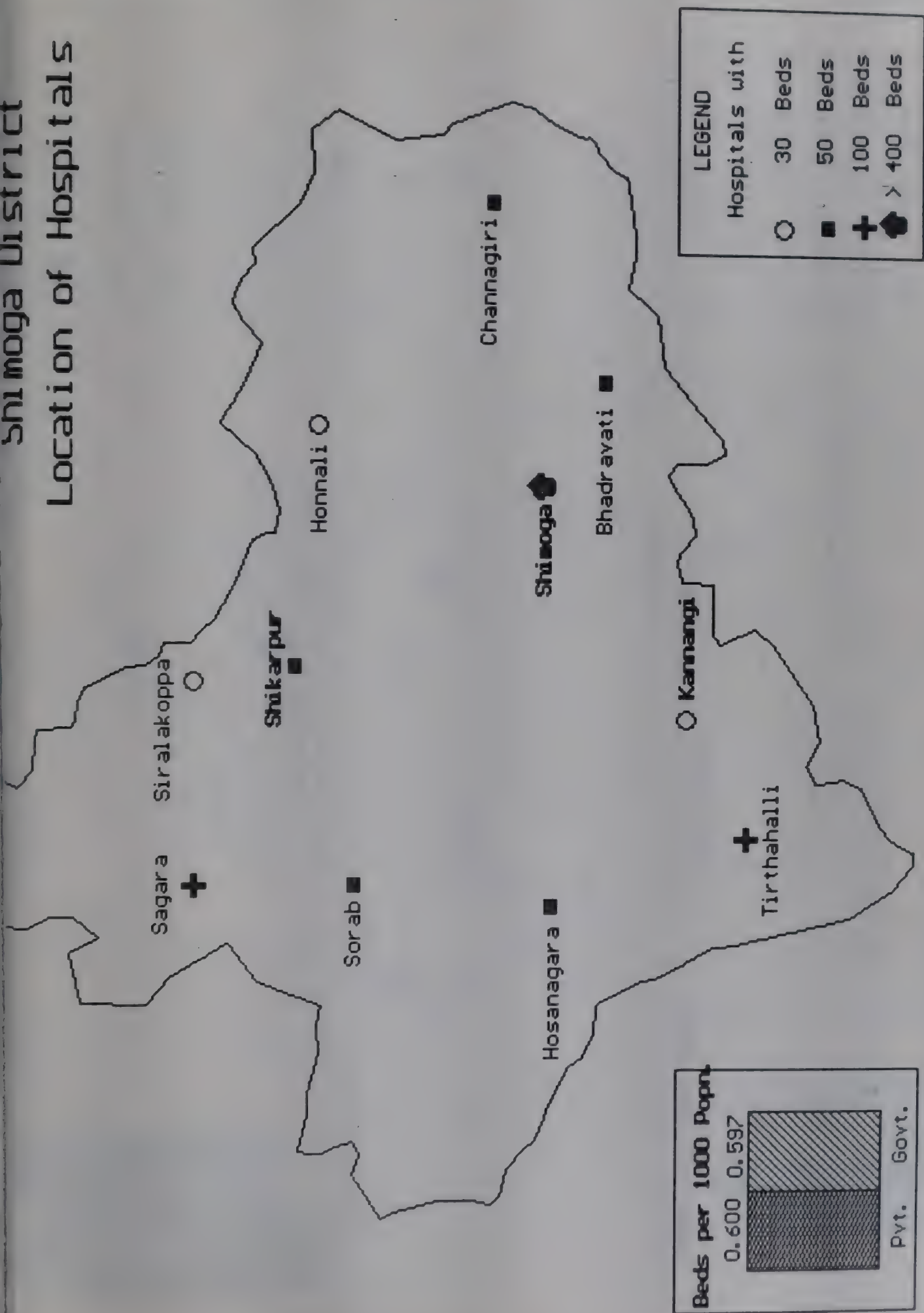
Mysore District

Location of Hospitals

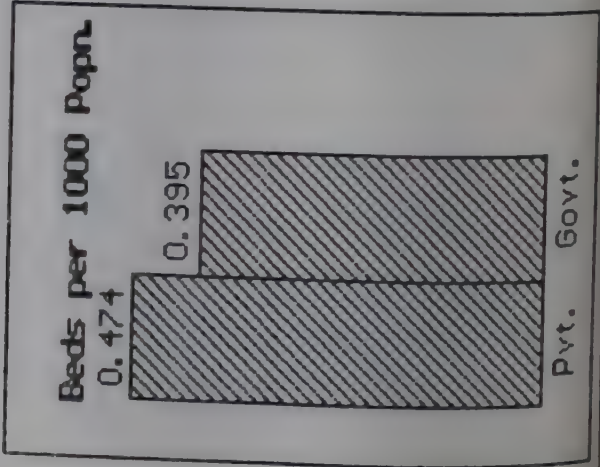
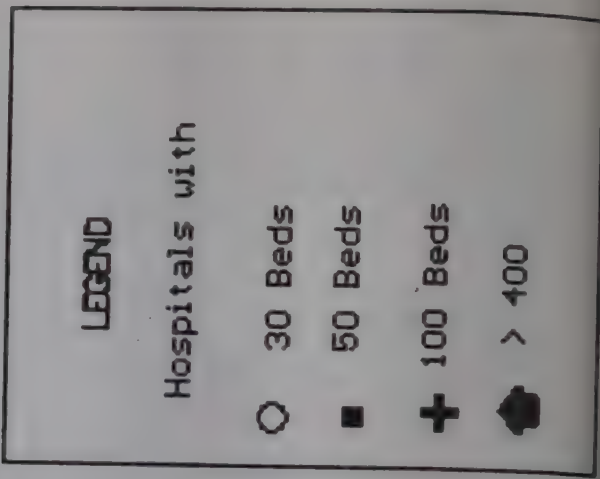
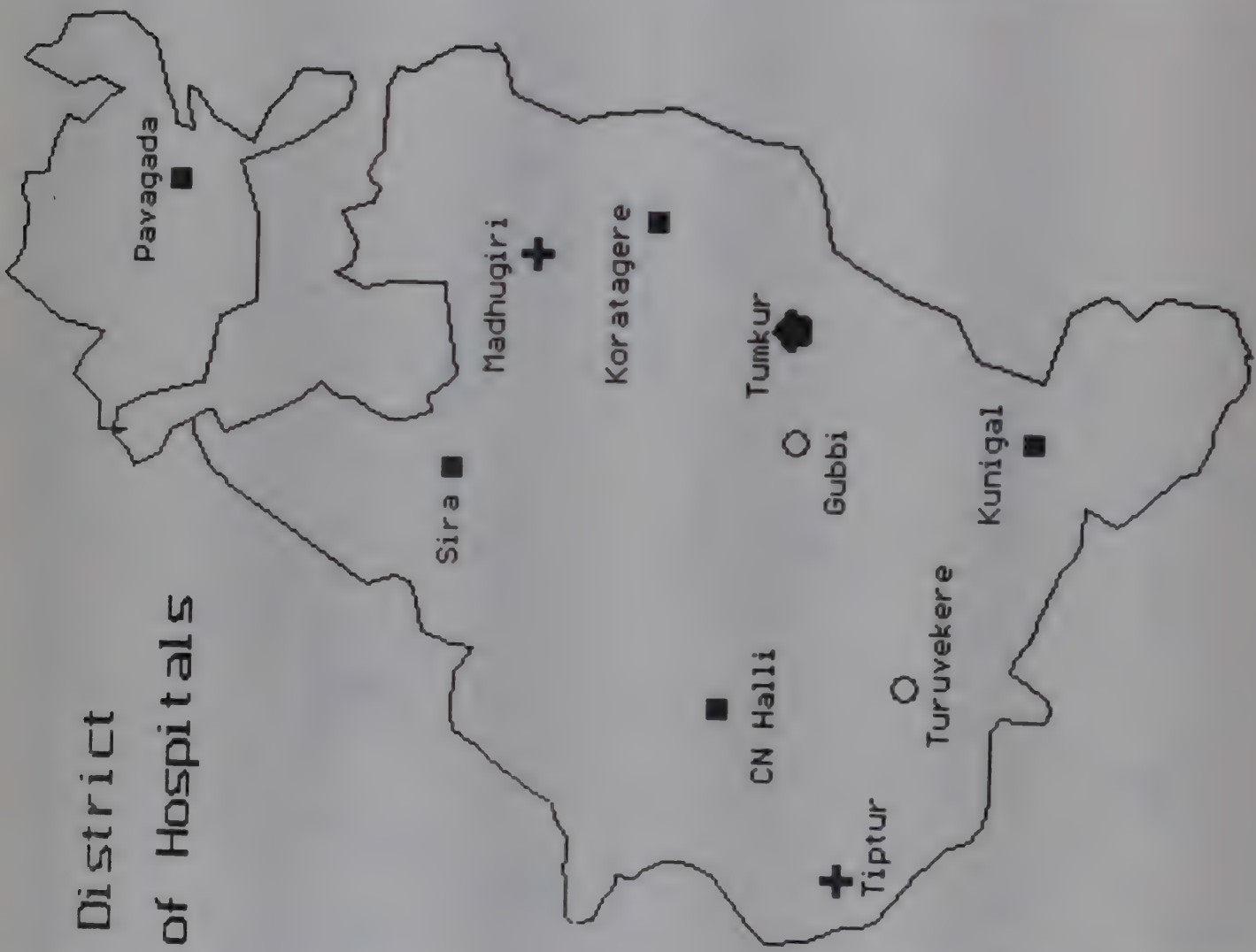


Shimoga District

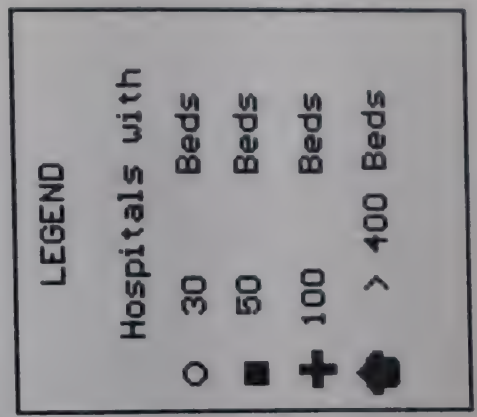
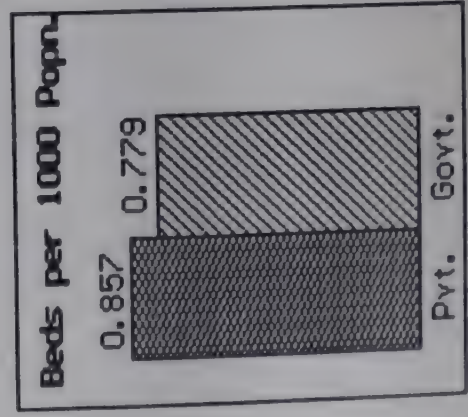
Location of Hospitals



Tumkur District Location of Hospitals



Location of Hospitals



Annexure 10

List of Working Groups

I Project Preparation Committee

1. Mr. Sanjay Kaul, Addl. Secretary (Chairman)
2. Dr. M.T. Hema Reddy, Director Health Services
3. Dr. S. Kantha, Director Medical Education
4. Dr. G.V. Halgi, Addl. Director (Projects)
5. Dr. G.V. Nagaraj, Addl. Director FW
6. Dr. K.P. Ma Ka Pur, Joint Director, HET
7. Dr. G. Vishwanath, Joint Director, Planning & HIS
8. Dr. Badri, I/C Director, Population Center.

II Norms for Hospital Facilities and Services

Medical Group

1. Dr. M.N. Venkata Subba Rao, Dist. Surgeon, Madikeri (Group Coordinator)
2. Dr. S. Bhavani, Jt. Director (OPH), Karnataka
3. Dr. B. Jayaramaiah, Bangalore Medical College
4. Dr. C.S. Kamala, Prof. & HOD Paediatrics, VVCH and BMC, Bangalore
5. Dr. B. Vijayalakshmi, DM Cardiology, Sri Jayadeva Inst. of Cardiology
6. Dr. J.A. Krishnaswamy, Dist. Surgeon, Bangalore
7. Dr. N.S. Nagaraja, Dy. Director (Medical), Bangalore
8. Dr. P. Shenoy, Prof. & HOD, Forensic Medicine, Bellary
9. Dr. Malhotra, Dy. Director, Health Services, Punjab
10. Dr. Krishna Rawat, Dy. Director, Health Services, Punjab
11. Mr. N.S. Prakash, Chief Physiotherapist, Victoria Hospital, Bangalore
12. Mrs. S.D. Phyllis, Nursing Supdt, Sri Jayadeva Inst. of Cardiology
13. Mrs. H. Seethamma, Nursing Supdt., SFW Bureau, Bangalore

Surgical Group

1. Dr. G.V. Vijayalakshmi, Jt. Director (Medical) (Group Coordinator)
2. Dr. K. Borappa, General Surgeon
3. Dr. Krishna Bai, Prof. O.B.G
4. Dr. Rajasekhar, Orthopaedic Surgeon
5. Dr. Nookapur, Opthamic Surgeon
6. Dr. Vijayendra, Dental Surgeon
7. Dr. Veeranna, E.N.T Surgeon
8. Dr. Rajasekhar, Urology Surgeon
9. Dr. K.V.R. Shastry, Neurosurgeon, NIMHANS
10. Dr. Narayana Prasad, Anaesthesiologist
11. Dr. Sashidhar Buggi, Thoracic
12. Dr. Maya Nadkarni, Anaesthesiologist
13. Smt. Sheela Phillips, O.T. Nurse
14. Sri George, Casualty Staff
15. Sri Nagaraj, Health Equipment Officer
16. Mr. K. Satyanarayana, Bio-Medical Engineer
17. Dr. Ramesh Durvasula, ASCI, Hyderabad
18. Sri. S.Nagendraiah, Service Engineer

Diagnostic Group

1. Dr. S. B. Patil, Jt. Director, Govt. Medical Store, Bangalore (Group Coordinator)
2. Dr. Jayakeerthi, Professor of Pathology, Victoria Hospital
3. Dr. K. Chandra Sekhar, Radiologist, Victoria Hospital
4. Dr. Bhagya Lakshmi, Project Officer District Laboratory, Chickmangalore.
5. Dr. Kamath, Micro Biologist, P.H.I., Bangalore.
6. Dr. T. Prabhu, Chairman, Laboratory services, Medinova Diagnostic centre
7. Dr. Sujothi, District Laboratory, Mysore.
8. Laboratory Technician, K. C. General Hospital.
9. X-ray Technician, K. C. General Hospital.
10. Sri. Veeranna, Nursing Superintendent.

III High Level Committe

1. Mr. Gautam Basu, Secretary, DoHFW
2. Mr. Sanjay Kaul, Additional Secretary, DoHFW
3. Dr. Shivakumar Reddy, Deputy Secretary, Medical Education, DoHFW
4. Dr. M. T. Hema Reddy, Director, Health & Family Welfare Services
5. Dr. S. Kantha, Director, Medical Education
6. Dr. P.N. Halagi, Addl. Director (Projects)
7. Dr. Jayakeerthi, Superintendent, Victoria Hospital
8. Dr. G.V. Vijayalakshmi, Jt. Director (Medical)
9. Dr. D. Timmaiah, Jt. Director, (Projects)
10. Mr. D.V.N. Sarma, Chairman, STEM, Bangalore

IV Working Committee for finalising Drug List

1. Mr Sanjay Kaul, Addl. Secretary
2. Dr. M.T. Hema Raddy, Director HS
3. Dr. S. Kantha, Director, Medical Education
4. Dr Vijaylakshmi, Joint Director, Medical
5. Dr. Rurdhra Naik, Medical Officer, Dodaballapura
6. Dr. Byrappa Raddy, Medical Officer, Gouribidnur
7. Dr. G.Y. Nagaraj, Medical Officer, RHTC, Ramanagaram
8. Dr. Vijayalakshmi, LMO
9. Dr. S. Srinivas Shetty, Asst. Surgeon, Tumkur
10. Dr Jayamma, Medical Officer, KCG, Bangalore
12. Dr. Ramappa, Medical Officer, Chintamani
13. Dr. N.R. Jayanthi, Medical Officer, Kaiwara
14. Dr. Padma, Medical Officer, Bangalore Urban District

V Working Group on Surveillance System

1. Sanjay Kaul, Addl. Secretary
2. Dr. M.T. Hema Reddy, Director HS
3. Dr. P.N. Halgi, Add. Director (Projects)
4. Dr. G.V. Nagaraj, Addl. Director H&FS
5. Dr. Gunduppa, Joint Director (CMD)
6. Dr. Murgendrappa, Joint Director, Malaria
7. Dr. V.G. Shetty, Health Officer, Bangalore City Corporation
8. Dr. Ma Ka Pur, Joint Director, HET
9. Dr. Gurulinga, Deputy Director, CMD
10. Dr. Rashid, Epideomologist





Report Prepared by

CENTRE FOR SYMBIOSIS OF TECHNOLOGY, ENVIRONMENT AND MANAGEMENT

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